

LIVER, BLOOD AND LUNG DISEASES.

Mrs. Mary A. McClure, Columbus, Kans., writes: "I addressed you in November, 1884, in regard to my health, being afflicted with liver disease, heart trouble, and female weakness. I was advised to use Dr. Pierce's Golden Medical Discovery, Favorite Prescription and Pcllets. I used one bottle of the 'Prescription,' five of the 'Discovery favorite and back. My difficulties have all disappeared. I can work hard all day, or walk four or five miles a day, and stand it well; and when I began using the medicine I could scarcely walk across the room, most of the time, and I did not think I could ever feel well again. I have a little baby girl eight months old. Although she is a little delicate in size and appearance, she is healthy. I give your remedies all the credit for curing me, as I took no other treatment after beginning their use. I am very grateful for your kindness, and thank God and thank you that I am as well as I am after years of suffering."

Mrs. I. V. Webber, of Yorkshire, Cattaranums Comments and Suffering.

Mrs. I. V. Webber, of Yorkshire, Cattaraugus Co., N. Y., writes: "I wish to say a few words in praise of your 'Golden Medical Discovery' and 'Pleasant Purgative Pellets.' For five years previous taking them I was a great sufferer; I had a severe pain iu my right side continually; was unable to do my own work. I am happy to say I am now well and strong, thanks to your medicines."

Chronic Diarrhea Cured.—D. LAZARRE, Esq., 275 and 277 Decatur Street, New Orleans, La., writes: "I used three bottles of the 'Golden Medical Discovery,' and it has cured me of chronic diarrhea. My bowels are now regular."

GENERAL

JEBILITY.

Mrs. Parmelia Brundage, of 161 Lock Street, Lockport, N. Y. writes: "I was troubled with chills, nervous and general debility, with frequent sore throat, and my mouth was badly eankered. My liver was inactive, and I suffered much from Medical Discovery' and 'Pellets' have eured me of all these ailments and I cannot say enough in their praise. I must also say a word in reference to your 'Favorite Prescription,' as it has proven itself a most excellent medicine for weak females. It has been used in my family with excellent results."

Dyspepsia.—James L. Colby, Esq., of Yucatan, Houston Co., Minn., writes: "I was troubled with indigestion, and would eat heartily and grow poor at the same time. I experienced heartburn, sour stomach, and many other disagreeable symptoms common, to that disorder. I commenced taking your 'Golden Medical Discovery' and 'Pellets,' and I am now entirely free from the dyspepsia, and am, in fact, healthier than I have been for five years. I weigh one hundred and seventyone and one-half pounds, and have done as much work the past summer as I have ever done in the same length of time in my life. I never took a medicine that seemed to tone up the muscles and invigorate the whole system equal to your 'Discovery' and 'Pellets.'"

Dyspepsia.—Theresa A. Cass, of Springfield, Mo., writes: "I was troubled one year with liver complaint, dyspepsia, and sleeplessness, but your 'Golden Medical Discovery' cured me." Chills and Fever.—Rev. H. E. Mosley, Montmorenci, S. C. writes: "Last August I thought I would die with chills and fever.

Chills and Fever.—Rev. H. E. Mosley, Montmorenci, S. C., rites: "Last August I thought I would die with chills and fever. took your 'Discovery' and it stopped them in a very short time."

"THE BLOOD THE LIFE."

Thoroughly cleanse the blood, which is the fountain of health, by using Dr. Pierce's Golden Medical Discovery, and good digestion, a fair skin, buoyant spirits, and bodily health and vigor will be established.

Golden Medical Discovery cures all humors, from the common pimple, blotch, or eruption, to the worst Scrofula, or bloodpoison. Especially has it proven its efficacy in curing Salt-rheum or Tetter, Fever-sores, Hip-joint Disease, Scrofulous Sores and Swellings, Enlarged Glands, and Eating Ulcers.

Rev. F. Asbury Howell, Pastor of the M. E. Church, of Silverton, N. J., says: "I was afficted with catarrh and indigestion. Boils and blotches began to arise on the surface of the skin, and I experienced a tired feeling and dullness. I began the use of Dr. Pierce's Golden Medical Discovery as directed by him for such complaints, and in one week's time I began to feel like a new man, and am now sound and well. The 'Pleasant Purgative Pellets' are the best remedy for bilious or sick headache, or tightness about the chest, and bad taste in the mouth, that I have ever used. My wife could not walk across the floor when she began to take your 'Golden Medical Discovery.' Now she can walk quite a little ways, and do some light work."

Mrs. IDA M. STRONG, of Ainsworth, Ind., writes:
"My little boy had been troubled with hip-joint disease for two years. When he commenced the use of your 'Golden Medical Discovery' and 'Pellets,' he was confined to his bed, and could not be moved without suffering great pain. But now, thanks to your 'Discovery,' he is able to be up all the time,

and can walk with the help of crutches. He does not suffer any pain, and can eat and sleep as well as any one. It has only been about three months since he commenced using your medicine. I cannot find words with which to express my gratitude for the benefit he has received through you."

A TERRIBLE AFFLICTION.

Skin Disease.—The "Democrat and News," of Cambridge, Maryland, says: "Mrs. Eliza Ann Poole, wife of Leonard Poole, of Willamsburg, Dorchester Co., Mā., has been cured of a bad case of Eczema by using Dr. Pierce's Golden Medical Discovery. The disease appeared first in her feet, extended to the knees, eovering the whole of the lower limbs from feet to knees, then attacked the elbows and became so severe as to prostrate her. After being treated by several physicians for a year or two she commenced the use of the medicine named above. She soon began to mend and is now well and hearty. Mrs. Poole thinks the medicine has saved her life and prolonged her days."

Mr. T. A. Ayres, of East New Market, Dorchester County, Md., vouches for the above facts.

CONSUMPTION, WEAK LUNGS, SPITTING OF BLOOD.

Golden Medical Discovery cures Consumption (which is Scrofula of the Lungs), by its wonderful blood-purifying, invigorating and nutritive properties. For Weak Lungs, Spitting of Blood, Shortness of Breath, Bronchitis, Severe Coughs, Asthma, and kindred affections, it is a sovereign remedy. While it promptly cures the severest Coughs it strengthens the system and purifies the blood.

It rapidly builds up the system, and increases the flesh and weight of those reduced below the usual standard of health by "wasting diseases."

"Wasting diseases."

Consumption.—Mrs. Edward Newton, of Harrowsmith. Ont., writes: "You will ever be praised by me for the remarkable cure in my case. I was so reduced that my friends had all given me up, and I had also been given up by two doctors. I then went to the best doctor in these parts. He told me that medicine was only a punishment in my case, and would not undertake to treat me. He said I might try Cod liver oil if I liked, as that was the only thing that could possibly have any curative power over consumption so far advanced. I tried the Cod liver oil as a last to give me up yet, though he had bought for me everything he saw advertised for my complaint, procured a quantity of your 'Golden Medical Discovery.' I took only four bottles, and an entirely free from that terrible cough which harrassed me night and day. I have been afflicted with rheumatism for a number of years, and now feel so much better that I believe, with a continuation of your 'Golden Medical Discovery,' I will be restored to perfect health. I would say to those who are falling a prey to that terrible disease consumption, do not do as I did, take everything class first; but take the 'Golden Medical Discovery' in the disease, and thereby save a great deal of suffering and be restored to health at once. Any person who is still in doubt, need but write me, inclosing a stamped, self-addressed envelope for reply, when the foregoing statement will be fully substantiated by me."

Ulcer Cured.—ISAAC E. Downs, Esq., of Spring Valley, Bockland Co. V. V. P. O. Box 28) writes. "The 'Goldet' Medi-

Ulcer Cured.—ISAAC E. DOWNS, Esq., of Spring Valley, Rockland Co., N. Y. (P. O. Box 28), writes: "The Golden Medi-

cal Discovery' has cured my daughter of a very bad ulcer located on the thigh. After trying almost everything without success, we procured three bottles of your 'Discovery,' which healed it up perfectly." Mr. Downs continues:

Consumption and Heart Disease.—"I also wish to thank you for the remarkable cure you have effected in my case. For three years I had suffered from that terrible disease, consumption, and heart disease, Before consulting you I had wasted away to a skeleton; could not sleep nor rest, and many times wished to die to be out of my misery. I then consulted you, and you told me you had hopes of curing me, but it would take time. I treatment in all. The first two months I was almost diseouraged; could not pereeive any favorable symptoms, but the third month I began to pick up in flesh and strength. I cannot now recite how, step by step, the signs and realities of returning health gradually but surely developed themselves. To-day I tip the scales at one hundred and sixty, and am well and strong."

Our principal reliance in curing Mr. Downs' terrible disease

Our principal reliance in curing Mr. Downs' terrible disease was the "Golden Medical Discovery."



JOSEPH F. McFarland, Esq., Athens, La., writes: "My wife had frequent bleeding from the lungs before she commenced using your 'Golden Medical Discovery.' She has not had any since its use. For some six months she has been feeling so well that she has

Price \$1.00 per Bottle, or Six Bottles for \$5.00.

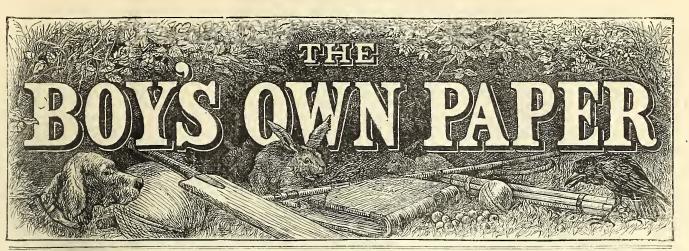
Golden Medical Discovery is Sold by Druggists.

WORLD'S DISPENSARY MEDICAL ASSOCIATION, Proprietors,

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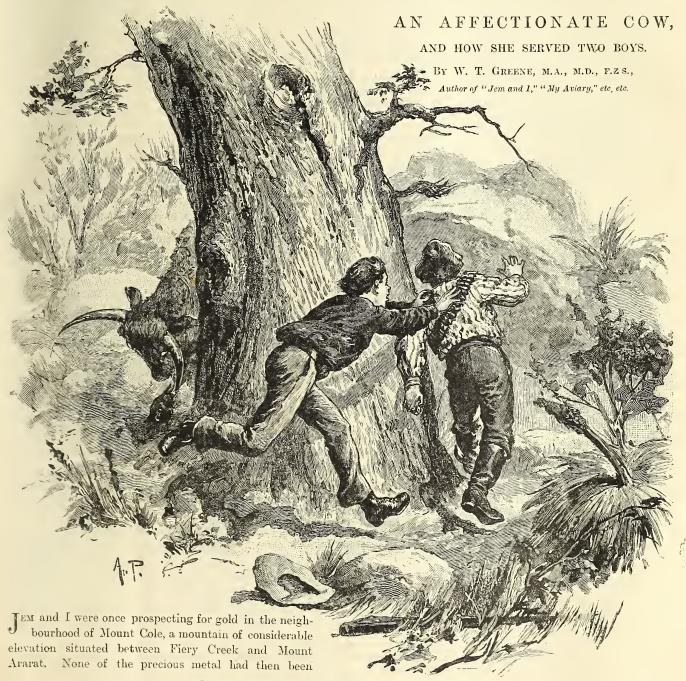
WATCHEDI



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found in the district, though the hillsides from a distance looked as if they were sovered with snow, owing to the large quantity of broken quartz that lay scattered about on the surface of the ground in every direction.

My friend had a notion that gold was the metallic base of quartz, and that where there was so much of the latter substance about, there must of necessity be some of the former too, if one could but be fortunate enough to find it.

His theory was quite erroneous, of course, as I afterwards learned, for silicon, not gold, is the base of quartz, but the time when we met with the adventure I am about to relate, I had no doubt in my mind that Jem was right, and gladly followed him to Mount Cole, where we encamped by the side of a limpid flowing stream, under the lee of a huge boulder of granite that stood up like a monstrous hayrick at no great distance from the brook, the sides of which were fringed by a dense growth of sassafras and miniosa that formed in places an all but impenetrable barrier for any one desirous of getting down to the water's edge.

On the other, or Fiery Creek, side of the brook, was a vast alluvial plain that extended for many miles to the south and west and reached almost to the coast above Geelong; but on the Mount Cole side the ground was of an undulating character, cut up into deep gullies that broadened gradually into flats of various extent as they neared the rivulet of which I have forgotten the name, but all around was to be seen an immense quantity of broken white quartz, a sure indication, as Jem then believed, that gold was to be found at no great distance.

A month or six weeks' trial of the place convinced us, however, that if any of the precious metal existed there we were not destined to be its discoverers, for we sunk shaft after shaft in flat, and gully, and on hillsides in vain; not even the "eolour" did we find, and gave up the

search in disgust.

Before removing to fresh quarters we thought we would enjoy a day's shooting or two, for the woods abounded with parakeets and cockatoos of every kind, from the huge white fellows with the lenion crests belonging to the latter denomination, down to the tiny green and blue lorikeets that clung in such swarms to the flowering branches of the gum-trees.

I shall never forget the first time a flock of Pennant's broadtails flashed across my path in the bright sunshine, their crimson bodies and blue wings and tails sparkling in the rays of the noonday sun, and fairly dazzling my eyes by their brilliancy, so that the flock was far be-yond the reach of gunshot before I had recovered presence of mind to take my gun from my shoulder, present, and fire.

There were kangaroosin the ravines and on the slopes of the mountain, as well as opossums and flying-squirrels of all sorts and sizes in the trees, and bandicoots in the grass-grown gullies: the entire district swarmed with birds of every description, and there were eels and crayfish in the rivulets and brooks, and especially in the larger stream by the side of which we had pitched our tent, while vast herds of semi-wild cattle roamed on the adjacent hills, where they encamped in companies, or I should say families, consisting of a dozen or two of cows with their calves of various ages, and one old bull which made the midnight hideous by his bellowing,

and fairly drowned every other sound in the forest.

On the Sunday before we were to remove for good from the vicinity of Mount Cole we went out for a stroll in the afternoon, for we never did any work or carried our guns on that day, if we observed it in no other manner, and rambling rather farther then we had intended we were overtaken by the darkness that almost immediately follows the setting of the sun in Australia.

We were not alarmed, for we knew the lay of the country, and could, moreover, catch a glimpse of a star here and there through the branches of the trees that enabled us to proceed in the right direction for our camp, of which we had taken

the bearings from the first.

As we groped our way along, we suddenly perceived something white just before us in a clump of bushes that grew in the centre of one of the gullies we had to eross before we could arrive at the site of our encampment, and we must needs have a nearer look and find out what it was.

"A quartz boulder," I suggested.

"No, I saw it move, it's an animal of some kind," said Jem; "may be an albino kangaroo."

"It's a calf, a few hours old!" marked, as I put down my hand to touch the little animal, which immediately staggered to its feet, and began to low in

a piteous tone for its mother.

Before either of us could realise the danger we ran, that exemplary bovine parent was down upon us with a rush that would inevitably have put a final stop to our eareer, had we not instinctively dodged her behind a tree, round which she followed us many times with a perseverance worthy of a better cause.
"What's to be done, Jem?" I asked,

for the fiftieth time at least we waltzed, so to speak, round that tree to the music of the old eow's angry bellowing and the young calf's piteous eries for help, which last were quite superfluous, for no one had meant to harm it, and its fears therefore were utterly groundless.

If that old cow could only have believed it, we were but too anxious to get away from her and her precious offspring, but she thought we had felonious intentions in its regard, and declined to let us go without first bringing us into contact with her horns, which were particularly long and pointed, as we had ample opportunity to remark. Yes, we were only too anxious to get away, but she was not a reasonable cow, and kept fellowing us round and round that tree until we were almost ready to drop with giddiness and fatigue.

"What's to be done, Jem? this can't go

on for ever."
"No," said my mate, "I've been thinking, suppose you make a run for it to another tree [unfortunately there was not another near us], and I'll dodge her for a bit while you get away, and then I'll make a bolt; I think I can run as fast as she can, and I shall have the start."

This was good advice, but I would not go first, and while we were dodging round and each wishing the other to escape, there was a sound of many feet approaching, and a dark mass seemed to detach itself from the hillside and move towards us at a rapid rate. We might dodge one cow all night, but the whole herd whose camping ground we had unwittingly invaded! we should be trampled to death in an in-

The old cow heard her friends approaching as well as we did, and turning her head in their direction, lowed to them to make haste.

"Climb for your life," said my mate, in an earnest whisper, and instinctively I grasped at the trunk of the tree by which we stood, while Jem did the same, and in less time than it has taken me to write this sentence, we were some ten feet up the tree, which happened to be an ironbark, and the projections on its sides afforded us foot and hand hold, so that we clambered up with comparative ease.

Having so far distanced our enemies, we proceeded more leisurely, but had not reached the first branch before some of the infuriated animals below butted so violently against our refuge that, had it been of slimmer growth than it was, we must have been shaken down, but happily it was as immovable as a rock, and in spite of the danger of our situation, we actually laughed at the impotent fury of the cattle, and climbed up earefully until we reached the lowest branches, where we settled ourselves each securely in a fork with our backs against the trunk, and pelted the cows with bits of the rugged bark we broke off on purpose, an indignity they resented by staring at us and lashing their flanks as they lowed their regret that we had escaped their vengeance.

Nevertheless, our predicament was an awkward one, although it had its comic side, and we laughed at this, but not for very long, for the night was cold, bitterly cold, and we but lightly clad: we were hungry too, and thirsty, which was rather

The leaves of the ironbark afforded neither meat nor drink, though we chewed some of them in the hope of finding both or either, and we began ere long to entertain serious anticipations as to the ultimate result of our adven-

Would the animals go away when it was morning? and if they did, would that wretched cow and her abominable white ealf go with them?

What if we were to fall asleep during the night and tumble from our perch upon the uplifted horns of the watchful

herd below?

In that case the fate of Alroy would have been an enviable one compared to ours, for he was first cut down by a Turkish scimetar and not impaled until he was dead, but we should be transfixed upon horns as formidable as any pointed stakes, be tossed up and down by our infuriated jailers, and finally trampled into still palpitating pulp beneath their cloven hoofs.

The prospect was by no means a pleasing one, and to prevent as far as possible its realisation we strapped ourselves with our belts to the branches upon which we

The night was cold, bitterly eold, as I have said, and towards morning there was frost. Our guards had lain down all round the tree, so that we had not even a chance of creeping down silently and stealing quietly away while they slept. We were almost famished, yet I believe we dezed for a few minutes occasionally, for I re-collect starting now and then, thinking I was falling, but happily we were able to maintain our position in the tree.

Our clothes were saturated with dcw, and I partially quenched my thirst by sucking what kad eollected on the few

leaves within my reach; but the cold! Our forced inactivity made us feel it more keenly than we should have done had we been able to move about and so keep our blood in a state of more active circulation.

Every time we stirred, even in the slightestdegree, some watchful cow would raise her head, and low in a menacing manner, as much as to say, "We are all here! you need not think to come down and take our young friend away."

At last the morning broke, and the dawn quickly broadened into day; then the cows began to move. The old bull was the first to rise from the recumbent position and stretch himself and sniff the breeze; his young sons and daughters then got up, and turning up their noses, stared at us poor creatures in the tree; and lastly the matrons of the herd rose slowly one by one, and sniffed and lowed defiance at us where we sat shivering on the branches far above their heads.

What a noise they made! The old bull bellowed loudly in response to the salutation or defiance of some brother or rival in a distant dell; the cows lowed in unison, and even the youngsters chimed in in treble tones. That they were holding a council about us was evident, for they stood looking at us, shaking their ears and lashing their flanks with their tails.

Were they about to disperse? and should we after all be allowed to effect

our escape?

The mother of the calf was evidently uneasy at the thought of being left with her offspring while we yet remained alive, if in the tree, for she bellowed again and again, and pawed the ground, and tossed up her head, and rubbed noses with several of her friends. Her entreaties were disregarded, however, for after a few minutes' consultation the entire herd trotted off, with the old bull at their head, on their way to their feeding grounds, and were presently out of sight, though for some time we could still hear the sound of their voices, to which our custodian now and then replied in manifestly reproachful tones.

The white calf, which could stand, but had apparently no experience in the art of walking, got its breakfast, which, terribly hungry as we were, we envied it inunensely; then its vigilant and only too affectionate parent performed its toilet by licking it all over, and finally began her own repast. There was pleuty of grass in the gully, and an abundance of succulent herbage, so that she was able to satisfy her appetite without moving far from our sheltering tree. Once or twice when her back was turned towards us we thought we might slip down and get away; but no, the instant we moved she was back at the foot of the tree, lowing and tossing her head in such a menacing fashion that we gathered but too readily what reception we might expect if we attempted to come down.

What were we to do? Our only hope was that some one might pass by within hearing, and we shouted coo-hee every now and then as loudly as we could, without any result save that of still further exasperating the exemplary parent of the white calf, who always answered our coo-hees by lowing defiantly in return.

At last, when we were almost exhausted with cold and hunger, thirst and want of sleep, as well as cruelly cramped by the constrained position we we had been compelled to maintain for so many hours, we heard a joyful sound, the most musical and delightful we had listened to for many hours—namely, the short impatient veloing of a dog in pursuit of game.

yelping of a dog in pursuit of game.
Some bushman's dog, no doubt! How
we coo-hee'd! but no answering human
voice responded to our call, though the
sound of the animal's yelping drew nearer

and nearer.

We shouted till we were hoarse, coo-heeing and calling, "Rover," "Jibblow," "Dash," and "Tinker," and every other canine appellation we could think of, but no answering shout responded, though the dog was evidently fast approaching the spot where we were perched like two sparrows on a house-top, or a couple of order in the helfsy of a church

of owls in the belfry of a church.
Our jailer heard the dog as soon as we

did, and showed manifest signs of alarm, for she immediately went to the clump of bushes where her ealf was lying, and talked to it confidentially in a low voice, but it only opened one eye sleepily, wagged its tail a little, and calmly settled down to rest again.

Growing more uneasy as she heard the dog approaching, the cow pushed her off-spring with her nose to make it get up, but it would not stir, ungrateful and perverse little brute that it was, though we threw bits of bark at it to rouse it, and shouted with all our might.

We might possibly have slipped down while the cow was thus engaged, and have got safely away, but the dog was approaching, and its master could not be far off, so we sat still, thinking it better

not to run any risk.

At last a kangaroo, evidently in the last stage of exhaustion, came in sight, and was followed at the distance of scarcely twenty yards by a dog, half collie, half greyhound, that had probably been in pursuit of its prey for some time, as its own condition was little better than that of the kangaroo.

There was a water-hole at the foot of the gully, into which the hunted marsupial leaped at once, unnoticed by the cow, which rushed furiously at the pursuing dog, which she evidently dreaded more than she did her human enemies, as

she thought us in the tree.

The dog was disconcerted by her attack, and snapped and snarled savagely at the cow, which he would most likely not have noticed if she had not placed herself between him and his anticipated prey; but she had interfered, and must take the consequences.

What these were we did not wait to see, for we took the opportunity of escaping this rencontre aforded us, and descending from our elevated perch, ran off unnoticed by the combatants as quickly as our cramped limbs would permit, and reached our camp in safety, where we heartily congratulated each other upon our escape from a very serious, not to say dangerous, predicament.

ALONE:

A SAILOR'S STORY.

CHAPTER II.

MUST have lain for some time weak and exhausted by the exertions and excitement I had undergone, when again the terrible fever and thirst came on me. The water-butt was near me and the dipper was in it. I tasted the water, and found, as I expected, it was salt. However, I knew I should find water in the cabin, so, once more crawling on hands and knees, I dragged myself to the companion and descended the stairs. for the wash of the water alongside, the creaking of the timbers, and that strange underfoot "swish-swish" which I had first heard on recovering consciousness, all was silent. Seizing the water-bottle from the swing-tray hanging from the skylight beam, I gulped down the sweet, precious liquid, and refreshed, I looked around me. Save for a few movable articles which had been thrown to the floor by the vessel's motion, and now idly rolled about, everything was in its place, and all seemed as usual.

I sank down on the deck and again

gave way to bitter thoughts. The racking pain in my head had increased, and it was evident I had injured myself there in falling, and the excitement and exertion of the last hour had told on my weakened frame.

I lay there, sometimes partially unconscious, at others letting my thoughts run as they would. I remember feeling a sort of amused wonder that I was not hungry, for I knew I must have been some days without food. And then my thoughts would wander back to the perfidy of the crew in leaving me here to perish. Then a new idea began to dawn upon me.

Had they voluntarily abandoned the ship, or had they all been swept overboard by the sea which had taken away the bulwarks? The same sea would almost certainly wash away the boats from their place on the main watch, and the most likely time that it would break on board was just as the foremast fell, when the ship would suddenly right

herself and fly up in the wind; and at that time all hands would be engaged in clearing away the wreck of the mast, and one heavy wave might easily have swept every soul of them into the seething waters to leeward.

As this idea became stronger in my mind, rage gave place to pity. Poor fellows! they had fared worse than I. I at least had some little life left in me, while they had perhaps been swept away and had perished in a moment. And even if they had left the ship in the boats, how long could they have remained afloat in such a sea?

I remember dragging myself to the pantry for water, as I again felt the burning thirst, and there I must have lain for some days. At times I must have lost consciousness, for I remember having the most hideous dreams, and I am convinced that some part of the time I was raving in delirium.

At length my naturally good constitution prevailed, and the fever left me; and I lay, languid and weak, with the tide of life at a very low ebb.

I began to feel a desire for food, and, after slow and laborious thought, for my faculties seemed benumbed and dull, I made up my remnant of a mind to search for some. But if I was weak before, I found myself doubly so now. I had hardly strength even to creep. After much labour and many rests, I reached a locker where I knew the steward had kept his ready-cooked food. I found a dish of slices of salt beef, probably cut ready for the tea-table, and a bread-tray of biscuits stool beside it, "chocked off" with a table-cloth. There was also some "soft" bread, but it was stale and mouldy.

Many days I lay there, slowly recovering my strength, until I felt strong enough to make an attempt to get on

deck.

My first thought on reaching the open air was to hoist a signal of distress, and looking upward, I was somewhat sur-prised to find the maintopmast still standing. The stays had evidently parted as the foremast went, and so saved the spar. Taking the large ensign from its pigeon-hole in the flag-locker in the companion, I bent it on, Union down, to the signal-halyards, and ran it up to the truck. There it flapped merrily in the breeze, like a tongue of flame, but bearing, with its reversed Union, mournful import to the nautical eye.

Seated on the sloping deck, with my back against the lee-side of the companion, I greedily drank in the fresh, invigorating sea-breeze; and I sat there all that day in a delicious languor, careless of where I was or whither I was drifting, conscious only that the racking, burning fever had left me, and that I was momentarily inhaling the life and strength-giving sweet, pure sea air.

Overhead the sun was shining in brilliant splendour, and the deep-blue sky was flecked here and there with masses of soft, feathery white clouds, sailing with slow majesty across. The sea was rippling and sparkling all around me, of wondrous beauty of colour. The smooth of the surface of the waves caught beautifully soft opal and pearl tints from the sky and clouds above, while the hollows and wrinkles were clear deep indigo and purple. Here and there a little unbroken wavelet would leap up and flash for a moment a brilliant blue-green, as the sun's rays caught it in its leap and filtered through it. And then all this beauty was crowned by the myriads of white feathery caps of foam which leaped into existence, curled and foamed and sparkled for a minute, and then collapsed and sunk into creamy froth and bubbles, and disappeared.
All day I lay dreamily revelling in the

beauty of the scene, and at times curiously observing the ravages which this now smiling and placid sea had made along the decks. Evidences of its fierce power were visible in the torn stumps of the stout oak bulwark-stanchions and frag-ments of "lashings" remaining in the ring-bolts. At times I dozed in the warm, bright sunlight, and towards evening I fell soundly asleep. When I awoke what a change was there! The same sea and sky, but under what a different light! Instead of the glowing sun, the softlybrilliant full meon reigned over the watery domain; and everything was softened and dim. The sea had sobered down into soft blue-black hues, save where the white crests sprang out of the dark waters, startling and ghost-like, and

below and turned into the captain's bunk and slept deeply and refreshingly till the sun was high in the sky. After satisfying my hunger, which was the most press-ing sensation I felt on awakening, I proceeded to give some attention to my toilet, which had been wofully neglected of late. After a good wash and a change of clothing I felt even better and more vigorous than before, and quite ready for the huge breakfast which I made of what I could collect in the pantry. My appetite was now enormous, and, knowing I had all the ship's stores to choose from, I determined to have something tasty for dinner. Accordingly, after breakfast and an hour's delicious dolce far niente, I started to explore the lazarette where the provisions were kept. I descended the ladder and reached the bottom step, when, splash! I stepped into water! In an instant the horrible truth flashed upon me. Now I knew the meaning of that gurgling and swishing sound which I had constantly heard when below decks, but to which in my illness I had not given much thought. The ship was half full of water!

A violent trembling and fit of giddy faintness seized me as I realised the awful fact that the ship was sinking beneath me. Had I, without nursing or medicine or attention, or help of any kind, struggled safely through a long and dangerous spell of brain fever only to find myself on board a sinking ship without boats or any means of saving myself? Had I only escaped a miserable death, alone on the cabin floor, to be help-lessly drowned like a rat in that beauti-

ful, smiling sea?

Utterly overcome by the shock, I staggered on deck and helplessly gazed over the rippling, laughing waters. They had no beauty for me now, but seemed to mock me. I could only stare at them in helpless horror and dread. After some time I roused myself from this stupor of

fear and began to think if something could not be done. As hope and courage returned, I determined that at least I would not die without an effort to save myself. My first impulse was to sound the pumps, and I found five feet of water in the hold! I had often read these or similar words in descriptions of shipwreck in the papers, but never till now had their terrible significance come fully upon me. Then the question arose, Was the ship leaking, or had the water only found its way into the hold through the open main hatch? And how could I, weakened as I was, ever hope to pump the ship out? Yet it was my only hope, and the sooner I set about it the better. I had before thought of trying to ascertain my position by the sun at noon, but lingered for a moment and disappeared, in the face of this present danger such Feeling chilly in the night air, I went an idea was abandoned. What did it matter where I was if the ship was slowly sinking beneath me?

The pumps were good ones, of the flywheel type, but to me terribly heavy to turn. However, drawing a bucket of water from over the side (and that was easy enough, for the deck seemed fearfully low and near the water), I "fetched" the pump and started on my laborious and almost hopeless task. Slowly I ground round the handle of the wheel, and slowly the box throbbed and clanked in the chamber, bringing up at each stroke a goodly volume of black water. Mystrength was such that I could only take very short spells at the pumps; but after an hour, on again sounding, my heart leaped with joy and hope, for I was almost certain the water was a good inch lower.

Drearily and ploddingly I ground away

all that day, only allowing myself short rests and barely time to swallow my food. But as night came on I again sounded the well, and, wearied and exhausted as I was, I gave voice to a yell of joy and triumph when I found that the line showed only four and a half feet. Convinced now that getting the water out of the ship was only a question of time, and that if she was leaking it was but very little, I decided to rest for the night. Thankful and full of hope, I threw my wearied body on the poop deck, and watched the stars grow into the fast deeping blue overhead, as I allowed my thoughts to run into hopes of soon being seen from some passing vessel and rescued; and this reminded me of an important thing which I had hitherto forgotten. I could just make out the flag fluttering above me, now black in the deepening darkness, but any one on a passing ship would be unable to see it. I must have a light up there. And soon I had a globe lamp burning steadily, like a ruddy star, and swaying gently to-and-fro as the vessel rolled easily on the slight swell.

(To be continued.)

TO THE TOP OF MONT BLANC;

OR, HOW TWO BOYS DID IT.

BY THE REV. WALTER SENIOR, M.A.

CHAPTER VI.-FIRST NIGHT IN SWITZERLAND.

THE first night in Switzerland of our two young adventurers was spent at Martigny, a short distance from St. Maurice, in

South Switzerland, from which run ribs the Rhone Valley. For you must know that | tion, in which ribs, or lateral valleys, are | that people are mostly obliged to stay one night at some place in the Rhone Valley.

the Rhone Valley is like the backbone of the grand mountains travellers go to see. But all the railway arrangements are so made

Strangely enough, the kind gentleman went also to Martigny, and stayed at the same hotel, and talked with them a good deal during dinner and after. He ended by say-

ing:—
"Go to bed soon, and be sure and get off early in the morning, not a minute later than or else you will have to walk in the sun, which, with a knapsack, will be no joke, I can assure you. And when you get thirsty, don't drink at every stream, it is dangerous; but take a raisin, or smooth pebble, in your All you need is to keep the saliva fresh and stirring, and the stone will do that

"Which route," he asked, "do you take to Chamouni? The Tete Noire or the Col de Balme? Go by the Col de Balme, for the sake of the snarise on Mont Blanc, and take seven or eight hours over it, and sleep on the There's a small inn on it, rough but It is a mistake in every way to hurry when there's no need. Take your too much, when there's no need.

time and enjoy your day.

Then he took them to get alpenstocks, and by his advice they bought tough ashen ones,

with strong full iron points.
"For, of course," he said, looking at them rather cunningly, "you intend to do Mont

They could not say no, and they did not like to say yes, and so they could only blush

and laugh confusedly.

That night they slept in a double-bedded room, the sleep of the weary; and if the porter had not knocked very hard next morning they would never have been up at five. was eurious that as he knocked both of them were full of dreams caused by the excitement in which they were living. Bob was dreaming that he was going up Mont Blanc, and had got amongst the glaciers. He was all alone in a world of ice, which was white and blue and green. The crevasses white and blue and green. The crevasses gaped wide and sank deep, and the scene was splendidly terrible. He heard the slow moving glacier grinding down the rocks beneath, and he also thought he stood over a moulin (about which he had been reading), and that he could plainly distinguish the torrent in its depths far below, rolling the millstone round and round, and banging it about with tremendous roar. Cling-elang, sh-h-h-h, rh-uh-h-, cling-clang, bang. and louder, nearer and nearer it seemed to come. He felt it was drawing him in. Bang! "Five o'clock, sir!" It was the

Harry was dreaming that Bob was some-how William Tell, and himself his comrade in arms. They had crossed a blue lake, and then strangely, yet naturally, he found him-self William Tell's son, with a very small apple on his head. Bob had feathers in his hat, and a tremendous bow and vrolese arrow. He looked a perfect brigand, and there came on a grand storm in which the lightning flashed and the thunder roared louder and louder, just at the moment when Tell shot his arrow, which, alas! instead of hitting the apple, stuck itself into the end of 's nose, who naturally woke up with a start, to find, as Bob had done, that the thunder was the porter's knock, whilst the sensation of the nose was nothing more nor less than the bite of a horrid mosquito, which had been most ravenously making a meal off its very tip quite in the fee-fi-fo-fum style. When Harry looked into the glass at his nose he found that mosquito operations do not improve that prominent organ. was red for many a day, and required a lot of bathing.

When you go to Switzerland, if you don't wish to be such a victim, be sure at Martigny to shut your bedroom window before you

light your candle.

porter's knock.

Breakfast at half-past five on a beautiful August morning; coffee, and eggs, and butter, and honey, and rolls. Such is life in Switzerland. Every Swiss man, woman, and child exists for the convenience of travellers, and you can order and do as you please, provided only that you can pay for it

Oh, it was fine, it was liberty itself to get the knapsack at last actually on the back, and alpen-stock in hand, to be ready to step out on the long expected tramp.

"Better have a porteur, gentlemen, carry the baggages," said the landlord. " will find them very heavy as you walk."

But no! that was not to be thought of, and off they went with laughing

Through the market-place and its square of trees, over the village bridge, along the torrent's side, and then to the right turn to the route of the Col de Balme, away they cheerily go. There are two paths, the old narrow, steep, bumpy mule path, and the new broad winding earriage road, easier, but an hour longer. Of course they must take the mule path, to face and conquer the worst. They found it, however, rough work even during the freshness of the early morning; but when the sun began to shine it beame a very arduous business indeed. How the sweat did pour from them! Very often had they to rest and get their wind, and about ten o'clock, when they had reached the small hotel on the Col de la Forclaz, whilst breakfast was being prepared, Harry fell fast asleep on a cosy sofa in the corner of the salle à manger.

Bob, who was as strong as a young ox, saw that Harry was getting knocked up with the knapsaek, and determined on a generous ex-

"How do you feel, old man?" he said.
"I'm just about all ache and pain in my shoulders, and I don't mind confessing to the need of a porteur. I dare say we can get one here to go as far as the Col with us.

So it was settled, but it was one o'clock before they started again. They did so, how-ever, thoroughly refreshed, and the porter led the way as if their knapsacks were only a

feather's weight.

Before them was the Trient Valley, into which they had to descend. Beyond it on the left was the mountain ridge whose summit contained the Col de Balme, at present

out of sight.

It was delightful to go down in the world, but soon they were urging their way again up the zigzag path which led through the pine forest of the mountains. Above the wood it emerged upon the lofty slope of a wild treeless valley which ran up to the Col de Balme in many a winding turn. At this part of their journey they had great enjoyment. The sun was warm, the path a pleasant green ascent, the seenery lovely. They walked a little, and sat a little on some tempting mossy seat; or they leaned on their alpenstocks to look back over the route they had come, the distance all beautiful in mountain haze, or to gaze upwards to the Col to which they were ascending lying hollow far up in the sky, between two peaks; or they stayed to pick specimens of the Alpine flowers (for they were more than 5,000 feet high), or to chase the butterflies which continually flitted by, red and blue, and white

But by-and-by, a little aloft on the moun-

tain side, was some rough stone building. "What is that?" asked Harry of asked Harry of the porteur.

'A milk and cheese chalet," he replied. "You can get milk fresh if you like; it is now the milking hour."

For some time they had heard the ceaseless tinkling of the cow-bells which tell of the presence of the Alpine herds, and fill the

lonely hills with mountain music.
"We must have some!" both exclaimed; for, you see, they had read how delicious it is when ascending a mountain or coming down one either, to chance upon a milk-chalet, and have milk out of a wooden pail,

helping yourself with a long wooden ladle. They sprang up the ascent, and soon left the porter out of sight resting on the path. And sure enough the sound of the bells got louder and more jaugling, and at last there was the herd of cattle and the flock of goats in a stone-fenced paddock, and there were the two milkmaids busy at work upon the patient cows; but such queer milkmaids—two men, father and son, whose faces were seamed with dirt, and who had each a onelegged stool tied behind him, that stuck out most comically, like a stiff tail, as they moved from one animal to another.
"Bon jour, messieurs," they said, and

looked at Bob and Harry as they went on

milking.

were splendid milkers. Thev pulled the udders the white streams went hissing into the pails and frothed deliciously. Soon our travellers had each their ladle with which they were helping themselves with great zest out of a small pail placed on the wall. Still whilst they were thus engaged a certain uneasy feeling of suspicion as to the herdsmen began to take possession of their minds. Both of them noticed that the two men kept casting furtive glances their way, taking stock of them as it were, and whispering to each other. It might mean nothing, or it might mean a great deal.

"Bob," said Harry, "I don't like their obks. They mean mischief."

Presently the younger man got up and went and looked up and down the valley, and then went back and whispered again to the older one.

"He has been to look if anybody is in sight," said Bob. "I don't think he could see the porter. Be cool. Stick to your

"Combien," he said aloud to the milkers, and got a franc or two in his hand.

Before he answered, the younger man jumped over the wall, leaving the older man in the tence.

"How much?" said he, leeringly. "Well, twenty francs, mes amis!

Bob knew then they were in for it; but

"Twenty francs!" Harry exclaimed indignantly; "twenty centimes, you mean. There's a franc, and that's good pay."

"Non! Non! Twenty francs, or I seize

you; I put you in there with the bulls; I kill you, I bury you in that great dirt!"

Whether he meant it or not, of course I cannot say, Perhaps he only wanted to frighten them. Anyhow, he put out his hand to seize hold of Bob. But Bob's blood was on fire and so was Harry's. What, to be treated so because they were boys, and alone!
Not without a fight for it! English boys were not going to be so easily frightened.

Bob started back and so did Harry, one

with his ladle up, the other handling his alpenstock, keeping well together. was Bob's ladle which came in handy first. Down he brought it, with a most sounding whack on the bare head of his would-be captor, which gave him a little pause. The next instant Harry prodded with his alpenstock right into the tender part of his stomach, and then as he doubled up, both of them rushed at him, and gave him such a vigorous push that he was hurled backwards. And oh, what a splendid joke! Falling so heavily, and luckily for them on a soft turfy spot, his stiff wooden tail sank deeply up to the very seat, and stuck him fast as effectually as if he had grown there. There he sat and fumed and raced.

It was all done in a moment, and the next instant Bob, like a real general, leaving Harry to hold down the captive by the nape his neck, rushed to the wall which the elder man was getting astride, to take him at his disadvantage. He was getting over the wall, because fortunately the open gate-way was at the other side of the paddock, and it was a long way round.

But seeing Bob charging on him with his alpen stock and ladle, he shuffled back off the wall again, and stood using very bad

language ou the other side.

Bob did not mind words, of course, so long as he could divide the enemy's forces, but when the old man set off for the gateway a grand idea tlashed into his mind. There was the poil with half the milk in it still on the wałl.

'Keep him down, Harry!" he shouted. Then he seized hold of that pail and ran back with it, and stood over the helpless, raging foe, who seemed to guess his fate, and all that precious liquid he poured over his sputtering, indignant face, saying:
"He didn't ask for water, but we gave him milk."

And then, literally to crown all, he stuck the empty pail on his head, and rattling it right heartly with the ladle, he said, as he threw the money on the ground:

"There's the franc for the milk, and there's another for the fun."

And so they both ran away, and were half-way down the slope to the path before the father could get to the release of his unfortunate son.

The boys saw them both a few moments after with their tails behind them, standing out against the sky, their hands waving in

frantic unappeased revenge.

But our heroes went on their way rejoicing. They had had an adventure, they had vanquished their foes. The fun had been tremendous, at least it was so now the danger was over. "Oh, 1 wish father had only seen it all!"

"On, I wish father had only seen to tar. langhed Harry.
"If the old man had only got over the wall be might have had it all his own way, for I thought I should have died of laughing," said Bob. "What a sight he was, all seated on the ground."

The porteur was highly amused at their bursts of laughter, and would fain have learnt the joke. But our heroes having had the best of it, determined to be silent, at least in

Switzerland, as to their strange adventure.

However, it seemed to put new life into them, and they did not even mind, when they reached the top of the Col and the little inn, that there was no view of Mont Blane. The mists were driving up the valley of Chamouni, and covering all the scene.
"Can we have rooms," said Harry, "and stay here the night?"

stay here the night?
"Yes, monsieur."
"And dinner?"

"Yes, monsieur, any hour."

"Please show us our room, we are wet with perspiration, and wish to change our clothes. After dinner they asked what time the sun

rose in the morning.

"Four o'clock, messieurs," answered the landlord. "You must rise at three."

CHAPTER VII.-"ENTICING FIRST GLIMPSES.

Bob and Harry scarcely needed awaking next morning to view the sunrise over Mont Blanc and his vast range. At the first knock at three o'clock they sprang out of bed, and hastily dressed by candlelight, for it was quite dark. The early time, the keen air, the weird darkness full of vast black air, the weird darkness full of vast black forms, the ebon sky, pierced with glittering points of light, gave them a kind of solemn feeling as they kept close to the youth who was guiding them to a small height half an hour above the hotel as the best point of observation. It darted into Harry's mind that the poet Coleridge must have been out in just such a way before he wrote his grand in just such a way before he wrote his grand "Hymn before sunrise in the Vale of Chamouni." Once he had learnt it, and it soemed struggling now to come up clearly in

"The sun will rise splendid," said the guide; "it is very fine promise. Voila!

Far back in the steel blue heavens was a narrow bar of dark red fire, and just as he spoke there leaped into view a beautiful the answer.

circle of faint rosy light in the lower sky above the dim gigantic forms which now began to take ghostly shapes. It was like a sapphire crown suspended below the stars. "Mont Blanc! Mont Blanc!" cried the

guide.

The crown gleamed brighter, rosier, larger. The crown gleamed brighter, roster, target. It seemed as if the finger of God were lighting up the glories of the day. The dark red bar grew redder, more fiery, and spread bar upon bar and widened through all the east. "Bob," said Harry "did you ever read Coleridge's hymn? I know it. It all comes back to me."

back to me.

"Say it very quietly," said Bob. It seemed a vast temple. The light was leaping on other snowy domes, and rising peaks.

Harry's voice was low as he recited, and oh!

so full of feeling. If he lives a hundred years he will never forget that glorious hour. Nothing but grandest poetry was equal to it.

Awake, my soul! not only passive praise Thou owest! not alone these swelling tears, Mute thanks and secret costacy! Awake Voice of swect song! Awake, my heart, awake! Green vales and icy cliffs all join my hymn.

"Good, good," murmured Bob. "Just what I feel! Go on."

Thou first and chief, sole sovereign of the Vale! O struggling with the darkness all the night, And visited all night by troops of stars, Or when they climb the sky, or when they sink: Companion of the morning star at dawn, Thyself earth's ROSY-STAR, and of the dawn Co-herald : wake, O wake and utter praise ! Who sank thy sunless pillars in dcep earth? Who filled thy countenance with rosy light? Who made thee parent of perpetual streams?

It seemed as if the mention of the "perpetual streams" liberated the sense of hearing in their souls which had been till then all absorbed in the sense of seeing as they watched the leaping of the rose fire from peak to peak. But now that sound of torrents which never ceases amidst the mountains of Switzerland seemed also to seize and fill them as part of the scene. The soul of the poet was in them, and his thoughts possessed and swayed them.

And you, ye five wild torrents fiercely glad! Who called you forth from night and utter death, From dark and icy caverns called you forth, Down these precipitous, black, jugged rocks For ever shattered and the same for ever? Who gave you your invulncrable life, Your strength, your speed, your fury and your joy, Unceasing thunder and eternal foam? And who commanded (and the silence came) Here let the billows stiffen, and have rest?

The light was gaining everywhere as Harry spoke. The domes and peaks were now all bathed in it. The red in the heavens had passed through manifold changes of coloured splendour into speekled gold and silver, and the darkness of the lower valley was giving place to lights and shadows. And now also were seen the five great glaciers of Chamouni amidst the forests of pine and the vast mountain buttresses of the higher peaks.

"Is there any more?" said Bob. "Surely this comes in!

Ye ice-falls! Ye that from the mountain's brow Adown cnormous ravines slope amain-Torrents, methinks, that heard a mighty voice, And stopped at once amid their maddest plunge! Motionless torrents! Silent cataracts! Who made you glorious as the gates of heaven Beneath the keen full moon? Who bade the . Sun clothe you with rainbows? Who, with living flowers

Of loveliest blue, spread garlands at your feet?

Harry made an eloquent pause of just a moment, and then in reverent but animated tones, befitting so grand a thought, went on to God! let the torrents like a shout of nations Answer, and let the ice-plaius echo, God! God! Sing ye meadow-streams with gladsome. voice !

Ye pine-groves, with your soft and soul-like sounds!

And they too have a voice, you piles of snow, And in their perilous fall shall thunder God!

The scene was indeed so stupendously fine, so much like the magic creation of another world out of cloud and darkness, so thrilling in its marvellous grandeur and variety, and the boys' hearts were so fresh and tender and enthusiastic, that not only did the words of the poet give vent to their emotion, but they seemed just to interpret the seeme and to insuite them with the only true spirit of it.

seemed just to interpret the seene and to inspire them with the only true spirit of it. "Go on, Harry! Do finish it. I never never heard anything like it. Who could dare not to believe in God? O, what a mountain!" he exclaimed, as now the Aiguille Verte just across the vale, as well as Mont Blanc farther down, was fully revealed from head to foot.

Thou, too, hoar mount! with thy sky-pointing.

Oft from whose feet the avalanche, unheard, Shoots downward, glittering through the pure serene

Iuto the depths of clouds that veil thy breast--Thou too again, stupendous mountain! Thou-Who, as I raise my head, awhile bowed low In adoration, upward from thy base, Slow travelling with dim eyes suffused with

Solemuly seemest, like a vapoury cloud To rise before me—Rise, O ever rise, Rise like a cloud of inceuse from the earth, Thou kiugly spirit throned among the hills, Thou dread ambassador from earth to heaven. Great Hierarch! tell thou the silent sky, And tell the stars, and tell you rising sun Earth, with her thousand voices praises God.

The poem was finished, and they remained long silent watching the glorious scene.

Then—you may not think it, but they did—

then Harry without looking at Bob began quietly to sing, as if to himself, as if it were-the right finish of all after so much glory:

Praise God, from whom all blessings flow, Praise Him all creatures here below, Praise Him above, ye heavenly host, Praise Father, Sou, and Holy Ghost.

A moment's hesitation and Bob joined in the grand old doxology, and gave his heart to it, and so they left the spot and quietly returned to the inn. They felt they had not only been in the presence of the Monarch of the mountains, but in the presence of its Maker and the God of their life.

I should pity the boy's heart, or for that matter the man's heart either, who did not feel

the same as these boys did.

When they came out of the inn after breakfast, the world was full of light, and from the edge of the Col they could gaze to the end of the Chamouni valley, and take in all its towns. There was Argentiere, and La Tour, and Chamouni itself, a white ideal in a green con surrounded by white island in a green sea surrounded by

great mountains. The valley of Chamouni is unlike most of the other smaller valleys of Switzerland in that it not only runs mainly from north to south instead of from east to west, but it is not a cul-de-sac with its highest peaks clustering round the end of it and forbidding egress. On the contrary, it opens from the south at Server or the Convergence of th voz on the Geneva route by a gradual winding ascent, and terminates in the north at the Col de Balme, which is between six and seven thousand feet above the level of the sea, and which on the other side, as we have seen, runs down to Martigny. Standing on this Col, as our young heroes are doing, the view which rises before the eyes is that of a narrow valley between two vast ranges, the range on the left seeming with its snowy domes and peaks almost double the height of the dark rocky masses on the right.

The young landlord stood with them as they once more surveyed the scene, rapt in admiration, before commencing their de-

scent to Chamouni.

"There," said he, "are the Aignilles Dru and Vertc, nearly 14,000 feet high, and the Glacier beneath is the Argentiere. Farther on is the Aignille de Charmoz, and the Glacier below it is the famous Mer de Glace. Then still farther on is the Aignille du Midi, and right above it the great centre (it seemed

drawn back as if in majestic reserve) rises the Dome of Mont Blanc."

That Dome a little below is the Dôme de

Gonte, and below that is the Aiguille de Goute, and that fine white Glacier most conspicuous of all is the Glacier des Bossons. It is like the long white beard of Mont Blanc. Beyond the Aignille de Goute is the other Glacier of Tacconay, but we cannot see it well. You will view it, and all the Glaciers above it, splendidly by-and-by when you climb the

Brevent, that peaked mountain you see facing Mont Blanc on the other side of the valley standing right over Chamouni. It is a view

superb.
"Bon jour, messienrs. Merci beaucoup." A two hours' walk brought the youths in high spirits to the Hotel D'Angleterre where their father had advised them to put up, and there to their delight they met the kind gentleman and told him of their adventures.

(To be continued.)

A CHAT ABOUT ENGINE-DRIVING.

How are engine-drivers made?"
"Sir, they are born."
"Quite so, but—"

"It is not every man that will make an

engine-driver."

And yet the occupation seems easy enough! What can be easier than turning a tap of some sort, looking ahead, and rushing through space until it is time to turn the tap off again? That is all that engine-driving means—to the majority. What difficulty, therefore, can there be in finding fit men to look ornamental on a footplate?

But the majority may be mistaken! When we come to know a little more about enginedriving we find that it is not quite so simple as we thought. In the first place an engine is almost the living creature that her driver Every engine has her whims and calls her. peculiarities; and no two engines, built alike in the same shop from the same plans, have ever yet been found to behave alike. In the next place the driver is the captain and lookout of a travelling engine-room; he has all the engineer's duties to fulfil in addition to attending to the state of the road. Every "beat" of his engine—four beats to every revolution of the driving-wheel—must be

true in time and sound; every rattle and shake must be accounted for; every curve and gradient requires special treatment; every change in the force and direction of the wind will tell its tale if provision is not at once made for it; and, in short, there is not a nut or tap on an engine that may not at any moment require to be seen to; a slight slip or breakage may happen, which if not dealt with instantly may wreck the train. It seems but a matter of signals to take an

express from station to station to the minute. But something else is required, and the very slightest want of attention on the driver's part may cause delay or disaster. When an engine has finished the day's work it goes to the shed to be cleaned inside and out by the boys; then the fireman or stoker comes ou duty, and takes it over and gets his pre-liminary work done; last of all comes the driver, whose duty it is to inspect the engine all over before he goes to take up his train. Let him pass but one screw carelessly and he may come to grief. And this keen watch on bolts and pins liable to snap or slip he must keep up through the day. Think of the rate keep up through the day. Think of the rate an engine works at. A seven-feet driving-wheel going forty miles an hour makes 160 revolutions a minute. Think of the weight that is thus spun along at the rate of 3,520 feet per minute! Why, the engine itself, empty, weighs over thirty tons, to say nothing of the load! The eight-feet flywheel engines on the Great Northern, that do the long run from London to Grantham, weigh $40\frac{1}{2}$ tons, and in their tenders have $3\frac{1}{2}$ tons of coal and 700 gallons of water; while some of the Midland tenders take 4 tons of coal and 2,900 gallons of water. Add these to the weights of the tender, of the coaches, of the passengers, and see what a mass it is of which the engine-driver holds control. A man suited to drive the mail, or the queen, is not to be found every day !

This driving of the queen is the bluc ribbon of engine-driving life. Days before arrange-

ments are made, and very elaborate they are. The engine is not only inspected by the driver, but by the locomotive superintendent in person, and every fastening, inside and out, is tried and tested. Every stationmaster and signalman on the line knows the very minute the train will pass him. pilot engine runs the course fifteen minutes exactly in front of the royal train. Between the passage of the pilot and the passage of the train nothing is allowed on the line, the points are all clear, and are even locked back so that nothing can get on the way. On the engine is a timekeeper watch in hand, seeing that every signal-box is passed at the time given on the programme; and though the driver has the chief officials of his company behind him, he is not interfered with, or even spoken to, so long as this time is kept. The man who drives the queen is a good man—a man who is as much master of his engine as if it were one of his own limbs.

The thorough control some men have over "the thing of cranks and wheels" was never more clearly shown than in an accident to an express some years ago. Suddenly the pin of the coupling between the engine and tender slipped out, and, while travelling fifty miles an hour, the engine darted off away from the train! The driver was on the engine, the fireman was on the tender. The fireman was about to put on the brake and

stop the train.

"Leave her alone!" shouted the driver, and without stopping he gradually brought his engine back, and, without a stop or a blow, so managed matters as to keep engine and tender close together until a new pin was put in and all made secure. And this while running, and getting the train home to time!
No one would have known of this extraordinary feat had not some labourers in a field seen the engine leap away from the train and then come back to it. The labourers talked about it, a station-master happened to hear of it and reported it, and the driver was called to account.

"Why did you not report it?"
"If I had done so it would have made a fuss, and given such a lot of writing work!"

Even the guards in the train were unaware of what is one of the most astonishing per-

formances in locomotive life.

All drivers are not like this one. example of the other kind, take the happygo-lucky individual who backed to his train and caught sight of the travelling inspector on the platform. The driver was so interested in watching which carriage he got into that he paid little attention to his proper The signal to start was given, and off went the engine. As the driver ran along-side the first platform at which he was to stop he saw a porter sweeping leisurely with a wide broom.

Leaning over, he gesticulated with his thumb, and kindly shouted as a caution to the leisurely porter, "Look out, he's with us!"

"No, he ain't," said the porter, "for you ain't brought no carriages with you!"

The driver had been so interested in the inspector that he had forgotten to make sure that his engine was coupled on!

His start from the station was a bad one;

but how did he start in his trade? He began, as all the rest do, as a cleaning boy. At every engine depôt are so many boys, who take over the engines as soon as they come in from their work. They empty the firebox, take out the fire-bars, clean and scour every part of the machinery, destroy every trace of dust and dirt, and polish up everything that should be bright. On the engine and in the engine they soon come to know all its parts, and in time are sorted out, the sharp from the stupid, and chosen to fill vacancies as firemen. As a fireman the lad begins work on goods trains and shunting engines, and is generally employed where he can do least damage. As a fireman he has to manage his fire so as to keep up the necessary head of steam without undue consumption of fuel or water. This is not so easy as it appears. Engines have their whims, coal has its obstinate fits, and weather no mau can control. A method of firing that will suit an engine one day may not suit it the next; and as the cricketer has to watch the ball, and not the place where the ball ought to be, the fireman has to watch the fire, and not content himself with taking it for granted that all is well. His shovel ought rarely to be still; "Paularns shovel ought rarely to be still; "Paulatim," little by little, is his motto; he has to obey the driver's orders regarding forcing and damping, to keep things tidy, and to have eyes all round him. From a slow goods he goes to express goods; from express goods he goes to local passengers; them local passengers he most to always to have the control of the control gers; from local passengers he goes to slow passengers, and at last he becomes fireman of an express. All through he is kept up to his work by a system of fines. If his fire is too feeble he is fined; if his fire is too fierce he is fined; if he saves coals and at the same timesecures efficiency he is rewarded.

At last he is promoted, and becomes the driver of a slow goods; and from that position he works his way step by step, as vacancies arise, until he becomes the driver of a mail train, doing his three hundred miles a day, and drawing his three half-crowns for each trip out and home. Those who wish to learn "all about engine-driving," as many seem to do, should go to the Camden depôt of the London and North-Western Railway, and prime themselves beforehand with Mr. Michael Reynolds's "Locomotive Engine-Driving." The London and North-Westernhave altogether some 2,500 engines, each with its driver and stoker; but in the depôt at one time only some forty may be seen. These are enough. Some of them have just come in from work, besmeared with dust and dirt, others are bright as jewellery, ready to go out. To feed them with water there is a well nearly five hundred feet deep; to feed them with coal there is a staging down the side from which the four-ton tender loads are shot; and there is a large furnace from which the shovelfuls of flaming coal are taken to give the engine fires a start, for all engines are lighted with live coals.

When the fireman arrives to take over the engine from the cleaners, there are usually but three inches of fire on the bars, and steam is feeble. He tests the water in the boiler, and looks at the pressure-gauge to ascertain the steam, and then proceeds to arrange his fire so that when the engine comes into the station on duty the steam is at the proper pressure, and none has to be blown off to waste. The perfection of engine management is to bring the engine in for the train without the slightest sign of steam about the safety-valves, and yet not to lose a minute during the trip, and this can only be done by driver and fireman working well together, and each attending to his own business. After the fireman has got his part of the work ready for a start, the engine-driver arrives and takes over the elean, bright, eager baby in whom he takes such pride. For a driver is always proud of his engine as being the nearest thing to living that we know. Think what the inventor must have felt when for the first time he saw something he had built up move of itself from one place to another! What were all previous inventions to that! "Make us done by driver and fireman working well tofrom one place to another! What were all previous inventions to that! "Make us something that will move of itself!" said the ancients, "and we will believe you!" And ancients, "and we will believe you!" And now it is made, and the cry is changed to "Make us something that will think of itself!" which is not so easy.
What a change these last few years of the

world have wrought! Go to South Kensingworld have wrought! Go to South Kensington and see the old pioneers with which the battle of movement was begun; or, as you run into Newcastle Station, look out at the bridge end, and behold old Puffing Billy with his spider legs, and compare him with the big-wheeled monarch going past, refreshed to recommence her career of studied wildness. Puffing Billy was but a tortoise compared to her! And an expensive tortoise too, for we have not only gained in speed and endurance, but have saved in fuel and and endurance, but have saved in fuel and

improved in handiness.

And what fascination there is in enginedriving! Who has not felt his fingers itching to get but one touch of the regulator, and turn on the steam for once in his life! But which is the tap to turn? Alas! It never tells you in the text-books! And this is an omission that once almost led to a disaster at the expense of those diligent students, the Japanese. How well we remember it! A merchant steamer came into Yokohama and was bought as she stood by the Japs. The captain offered to leave somebody on board

to show the new owners how things were arranged below. No. "It was all in the books!" And the English cleared out to a man, and left the Japs in possession. man, and left the Japs in possession. Next morning we could see that something was wrong on the new Japanner. There was "a mighty movement" on her decks, a running to and fro as though raving madness had attacked her crew. What did it mean? At last a boat came off. Would we kindly send an engineer on board? We did; and the engineer found that the fires were full on—as per teyt-book; the steam was up—as per per text-book; the steam was up—as per text-book; and was still going up—not as per text-box; for the Japanese knew everything except how to turn on the steam! The text-book did not say which was the proper tap to turn, and the duly certificated students were in mortal terror contemplating a safetyvalve they could not move, and a pressure-gauge that told them every minute might be their last!

Even dogs have felt the fascination of the agine. There used to be a bright little English terrier that travelled regularly from King's Cross to Doncaster seated on the toolbox. Hail, rain, or sunshine, the dog would be seen sticking to his post while the engine dashed along at full speed, and the wind she made brushed out his coat till it looked as

if made of bristles.

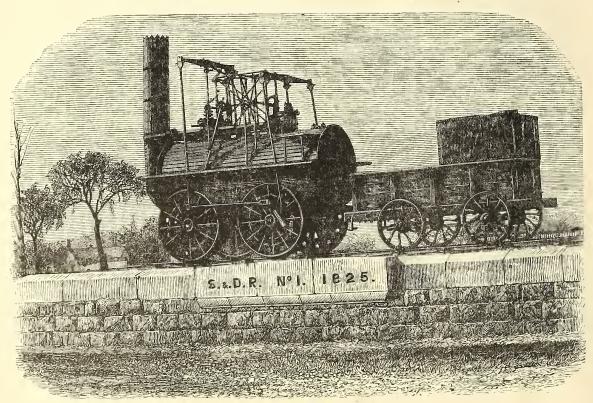
And then there was, of course, Snatchbury, the prince of drivers' dogs, whose adventures have been told at length by Mr. Reynolds. Poor Snatchbury! One day he came into Euston Square, dodging about on the platform, evidently looking for a friend. The engine came in and the driver, best known as Duke," from his aquiline nose, caught sight of the dog, and called him. Here was a friend assuredly; and the little rough-haired, smallheaded lump of yellowish caninity jumped on to the footplate, and scrambled up to the back of the tender. Off went the train, and with it went Snatchbury, as he came to be christened. And for ten years afterwards, by night or day, through fog or sunshine, Snatchbury stuck to "The Duke," and with his shaggy hair blown back so as to show his white teeth, hardly ever missed his engine. Every day he would come on duty and race down the engines in the shed till he found

the right one, and if it had been moved be would leap and white till it was pointed out to him. One day he came too late. His master was just going out; but Snatchbury was an observant dog, and waited till the next engine going the same road started, and then he jumped on her and went to Rugby where he changed engines to Bletchley, and there picked up his master!
Snatchbury's intelligence was remarkable,

and he had an observant master who duly re-

The dog learnt the signals, and could tell whether they were up or down, or red or green; and if a red light was shown ahead he would announce the fact by a warning bark. Even the fog signals he came to know the meaning of, and he would emphasise only the danger ones! In fact Snatchbury took an intelligent interest in all that he came across, and seemed never to forget what he saw. And he was a kind-hearted dog too. Often would his little face be seen on the engine at Euston leaning over and looking along the train; and if he noticed a strange dog being put into the brake by the guard, down he would get, and run in to the stranger to see that he was comfortable, and doubtless assure him that it was all right as "the Duke" was the driver!

But one dreadful night a signalman at Harrow made a mistake and showed the line all clear when a goods train was in the way. On came "the Duke" in obedience to the signal full speed into the trucks he could not see. He was killed. Snatchbury was hurled off with him, but was unhurt. The dog's grief was heartbreaking, nothing for a time could console him. At the funeral the most touching sight was the tearful little dog following next to the eoffin. When he went home it seemed as though he would die of home it seemed as though he would are or grief; but a pious fraud was resorted to, and the driver's boots were placed by the fire as though ready for him when he came back. And with his nose between his paws poor Snatchbury waited, till he slept, for the master he was never again to see. After a size of Snatchbury researed somewhat and time Snatchbury recovered somewhat and took to another driver; but it did not last long. And now he label for an epitaph. And now he is in a glass case with a



Puffing Billy.

LAWN-TENNIS OF THE PRESENT.

By E. T. SACHS.

During the past five years very great strides have been made in the development of lawn-tennis as a scientific game, and those who are anxious to play really well at some time or other are beginning to realise the fact that a certain degree of "form" is necessary to enable a young player to develop into a good one.

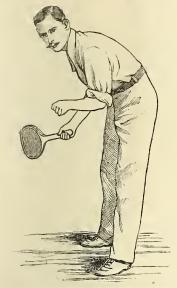


Fig. I .- The Under hand Service.

The player of the future will unquestionably be one who, in his youth, from either example or precept, learned to play in good style, and, by dint of hard practice, made himself perfect. But the player of the future will not be the man who, as a boy, began playing in poor form. Every boy knows that the first injunction he receives from his mentor at cricket is to play with a straight bat; and, in the same way, there is connected with every other game or pastime some rule which must be observed at the outset, if the player is to become a good one. However naturally adapted a youth may be for playing games, he will shine in none of them if he neglects "form;" but we have abundant proof before us that correct style and play will bring the apparently weakly to the front.

the front.

I could mention two boys of fifteen (like the brothers Renshaw, twins) whom grown men, playing well, find it hard to beat; whilst every one now knows the name of Miss Lottie Dod, a young girl of fifteen, who has casily beaten the very best of lady players and won all the important championships, simply because she plays in perfect style and without any flourishes. I verily believe that if Miss Dod were to play against every male lawn-tennis player in England she would defeat two for every one who described to the play and the state of the play against every male lawn-tennis player in England she would defeat two for every one who described to the play against every male lawn-tennis player in England she would defeat two for every one who described the player in th

feated her.

The first thing every boy who is earnestly learning to play well should get out of his head is the idea that cutting the ball, so as to make it serew back a tremendons distance, is the correct thing. It looks very clever, I dare say; but the other boy on the opposite side of the net is not going to be so silly (after he has read what I have to say) as to stand at the end of the court watching the ball bound from a distance. Not he; he will do as I tell him, and, directly he sees that the ball is being cut, run towards the spot where it seems likely that it will fall and patiently wait until it serews back. The more it

screws back the better it will be for him, for the easier will it be for him to bang it back again with all his might.

Screwers should remember that the more a ball is screwed the slower it will travel through the air and the higher it will rise from the ground when it drops; and he who persistently screws will not win a stroke, except by accident, if he has a good player against him. The more a ball is screwed the better the good player on the other side likes it, as it gives him an easy stroke, for the ball hangs for an instant dead in the air when it has done rising from the ground, and can be put where the opponent pleases.

What I want all boys who play lawn-tennis to learn is to "drive" properly. This "drive" is the equivalent of the straight bat at cricket, and in it is the backbone of the game. The thing to do is to hit the ball just as it is falling to the ground with an under-hand swing from straight behind. The racket must be swung as far back as possible, perfectly square, and brought forward with a swish, finishing high in the air in front, having performed nearly three quarters of a circle. This is the plain drive, which, simple as it looks, is the secret of success with very many. At first the force applied should not be very great. The object of the player must be to skim the net as nearly as possible, but the art of doing this can only be acquired by practice; and if the ball is hit very hard and passes more than a foot over the net it will go "out," over the base-line. The perfection of the drive is one which just skims the net and is made with the player's full force. Actual experiment has proved that if the ball be struck from the base-line and passes not more than nine inches over the net, it is impossible to send it out of court. It is as well to know this; but I fancy very few will be found who are aware of the fact.

few will be found who are aware of the fact.

I do not counsel the young player by any means to try and hit his hardest at first; he should begin by attaining accuracy, and if he does this he will be able to give the boy on



Fig. 2.—The Back-hand Screw Service.

the other side of the net plenty of work to do. Besides, it is not always the game to hit with full force; for there is one other very important branch of base-line play to be learned, and that is "length." No previous writer has touched upon this point, and yet it is one of the most important.

Every one who has played half a dozen games at lawn-tennis knows how much easier it is to "place" a ball across an opponent's court when the ball is struck from a position near the net; when the ball drops near the base-line the player has litle else to do but send it straight back.

It must therefore be the better game to



Fig. 3.-The Back-hand Volley and Service.

return the ball as far back as possible, if the opponent be standing on or behind the baseline. When once you have got him there, keep him there. For this purpose you do not want a particularly hard stroke, nor need the ball skim the net; what is wanted is a fair pace but good length. The ball should drop not more than four or five feet from the baseline, when it will have to be returned from some distance beyond. No one can give you a difficult return from there; and you will continue to peg away at the base-line until your opponent sends one short, when of course you run in to it and get an easy stroke. You can then do one of two things: you can send him a very hard one into one of the cources of the court (if you can, select the one farthest from where he is standing), or you can, if you are near enough to the net, and the ball rises high enough, place it across the country out of his reach, if possible, but, at any rate, far enough to cause him to get out of position, and, if he is lucky enough to return the ball at all, give you an easy stroke. Avoid, to the utmose of your ability, returning the ball short—i.e., in the neighbourhood of your opponent's service-line, as you are then giving him what you are so desirous of making him give you—an easy one. H. F. Lawford is perhaps the best base-line player we have, but even he can do nothing whatever if he is kept beyond the base-line except play the same tactics and play a good "length" ball. Lawford's game is one of the soundest, and

Lawford's game is one of the soundest, and the theory of it is simply this: Pound away at your opponent with the plain hard drive until you get him into difficulties, and he gives you a weak return. A weak return may be one which drops somewhere about the service-line, or it may be a high ball dropping much nearer the net. I have told the player what to do in the former case; in the latter he should run up and volley the ball overhanded, as much out of the opponent's way as he can. I shall speak of the volley presently.

In playing the plain drive, it depends en-

tirely upon the position you are in with regard to the base-line and the net, at what period of its descent, after it has touched the ground, that you will strike it. If you are near or beyond the base-line, wait until the ball is nearing the earth for the second time. This will enable you to strike it with the natural wing of the racket, with the arm extended. The more you can utilise the simple swing of the racket and arm, the less exertion of the muscles is required and the longer it takes before one becomes fatigued. This is where the player will derive the full benefit of a proper style. Where, as is very frequently the case, the player strikes the ball with a downward sweep of the arm ("cutting" it to a more or less extent, and so checking its speed and causing it to rise from the ground higher than it otherwise would), there is the exertion of raising the arm to give the blow, whilst the blow itself tires the muscles far more than does the simple act of drawing the racket backwards and swinging it violently

Lawford very soon discovered that it was simply suicidal to put any under or reverse spin upon the ball, the effect of which is, as I have described, to retard the pace and cause the ball to rise high from the ground. What is wanted is just the reverse—*i.e.*, top or overspin, which causes the ball to revolve in the direction in which it is going. Lawford told me that it took him as long as three years to bring this stroke to perfection; now he makes it unconsciously. The revolution makes it unconsciously. The revolution may not be very great, but the effect of the ball touching the ground is precisely the same as that of a person running and whose feet suddenly catch in something. Only the feet are arrested, the motion of the upper portion of the body continuing, with the result that the runner damages his nose. It is the same with the ball. It is flying along at a great pace when, suddenly, what is at the time its lowest point is momentarily arrested by its contact with the earth. The upper portion, however, flies on, the result being that the The same result occurs, only in a modified degree, when the ball is struck so that it travels exactly on "an even keel. The contact with the ground, arresting the lower part for a fraction of time, brings about a forward spin and a shoot.

When you are sufficiently near the net to warrant the hope that you can return the ball so that the opponent cannot reach it, by no means wait until it has dropped far. A ball dropping near the net cannot be returned at any pace and kept in court if it be allowed to approach the earth. If you are tall enough, take it before it descends to the level of the net-cord. This will give you a perfectly straight, or even slightly downward, stroke, into which you can fearlessly put your whole force. In raising the racket for the purpose of taking the ball high do not hold the racket out horizontally and "mow," but raise the elbow, keeping the forearm and racket always perpendicular.

There is a little secret in connection with putting force into a ball which I must not forget to impart. Why some people are able to make the ball travel so much faster than others is that they understand the knack of putting the weight of their body into the stroke. A right-handed player, playing the fore-hand stroke, should be standing sideways, the left leg forward, and as he strikes the ball he should bring his whole body forward (so much as to cause him to follow the stroke a step or so), and he will be surprised at the pace which he can put on the ball. This is a secret well understood by all boxers, weight-putters, oarsmen, etc., and applies markedly to lawn-tennis, not merely when a very hard stroke is required, for if the body be used in all cases, so much the less exertion will be entailed upon the muscles of the arms.

As it is by the swing of the racket that part of the force is obtained, it follows that the racket should be held as long as possible.

The form of handle which I recommend is the six-sided, with the ordinary leather stop at the butt. The leather can either just protrude beyond the little finger, or may be held more in the eavity of the hand, so as to rest upon the third finger. I fancy the first method, which is adopted by the Renshaws, as giving greater firmness. When a ball is extra far off, additional reach can be obtained by letting the racket slip through the fingers until the stop touches the third, or even, in a case of great emergency, the middle finger. Miss Mand Watson, who is noted for an excellent service, goes to the extreme of holding the racket absolutely by the butt in the ends of the fingers, and swinging it perpendicularly over the shoulder, backwards and forwards, when serving. But this unique style, although satisfactorily adopted by its inventor, cannot be recommended for general use. These remarks bring us naturally to the important question of

SERVICE.

Youthful players are very apt to think that it is a great advantage to have the service, but it has been proved by results that the server is, if anything, at a disadvantage. If it were possible for him to make sure of serving the ball at seventy miles an hour (when I say seventy miles I "speak by the book," and do not use a mere comparative figure) into the opponent's service court, then the advantage of the service would be so great that the rules would have to be altered to meet the case, or the game would be very one-sided. In the old times, when the service-lines were much farther from the net than they now are, the service had by far too much advantage: but, at its present distance (21 feet), it is by no means easy to bring about a service which shall altogether beat the opponent. One reason why the service is less advantageous than it otherwise might be, is because players do not study the stroke sufficiently. Take even the very best stroke sufficiently. Take even the very stroke sufficiently. Their first service, when it players we have. Their first service, when it "comes off," is often unreturnable; but it does not always "come off," the ball being served either into the net or somewhere outside the limits of the service-court. The second service is then the easiest of the easy, the ball being delivered with the sole view of making it drop into the service-court to a certainty, all ideas of placing being discarded. The opponent thus gets a very easy return, and, as often as not, wins the stroke directly from it. I took careful notes of the play in the great matches at the championship just concluded between Lawford and Grove, and Lawford and E. Renshaw, and both my observation and my notes show me that Lawford, who won both matches, owed his success almost entirely to the weak second service of his opponents, coupled with the masterly way in which he treated it. In each match Lawford won nine strokes absolutely off the second service, whilst twice that number were won through the difficulties the opponent was placed in in consequence.

From this it is clear that the greatest care should be taken with the service. Two courses are open to the learner. He can study to deliver a first service which is sufficiently severe and low to prevent the opponent from doing much with the ball, and yet is not so swift that it is as much a matter of luck as anything else when it drops all right in the service - court, but will do so five times out of six. A very little slackening of pace will then make the second service a certainty, whilst it will not be very much more easy than the first. I am here unconsciously describing Lawford's method of serving. It is very rarely indeed that he wins a stroke through putting his service out of the opponent's reach, and when it is returned into the net or out of court, it is generally because the opponent was trying to do something difficult with it, and failed; but it is not often that an opponent can make a winning stroke off Lawford's service, either first

or second, for the reason that it is "safe." Or the player can practise delivering a very swift service, with the object of winning the stroke now and again by it, as some of the best players now and again do, and then learn a second service which keeps the ball low. With the Renshaws and other players, every now and then a game is won right away, four strokes in succession, through the service. The pace is so great that the balk cannot be struck with sufficient accuracy and delicacy to keep it in court or out of the net; so it cannot be gainsaid that a hard service, which W. Renshaw told me it took him a whole year to learn, has its advantages, one of which is that it keeps the striker-out well at the back of the court, to begin with. The learner must take his choice between safety and occasional brilliancy. One thing is certain—it is very difficult to maintain a hard service throughout a long match.

If the service is to be a hard one, the higher in the air the ball is when it is struck, the better chance it has of getting over. Consequently tall men have a very decided advantage in the service, and there is therefore more reason for a tall youth taking up a hard service than a short one, as he is less likely to serve into the net than the less favoured player.

Placing plays an important part in the rvice. I am not at all sure that, as a general rule, it is not the best plan to serve straight at an opponent; but if he stands ever so little too much towards one of the side-lines, serve unhesitatingly as close as you can—or dare—to the half-court-line. This maneuvre will be especially useful when serving from the right-hand court, as in that case the halfcourt-line is on the player's back-hand, which is, in a vast majority of cases, much weaker than the fore-hand. (I am of course assuming that both players are right-handed. In the case of left-handed players precisely op-posite tactics to those described here must be pursued.) The first service is, I think, always best delivered from the extreme corner of the court, as the opponent is thereby driven more out of position; but as the second service will probably be easy of return, the server should deliver it from the neighbourhood of the half-court-line, where he is sufficiently in position. If you deliver the first service on one side of the service-court, and the striker does not alter his position, deliver the second service on the other side—never give him two strokes alike, whenever it can be avoided, cither when serving or during the decision of

For the first service, if it is to be a swiftone, the only instructions one can give are,
hit the ball as high as you can, as hard as
you can, and as close over the net as you can.
For the second service, if it is to be of the
gentle order, I consider the over-hand stroke
unsuited, as it must entail the high-bounding
of the ball on the other side of the net. I
am not sure that the round-arm service,
which puts a slight side-spin on the ball,
causing it to keep low, is not as good as any.
It is not difficult to return; but, as it keeps
low, no one can make a hammering return
off it down a side-line or across the court, as
can be done off an easy over or underhand
service, which can be compared to nothing
better than the giving of easy full pitches to
a first-rate batsman. The act is just as
suicidal.

Players are still much wanting in resource, and very few of the new school seem to be acquainted with the back-handed over-hand service. In this service the right foot is placed upon the service-line, the right shoulder being in front, the server thus looking along the base-line to the left, and not along the court. The racket is held in readiness (as in Fig. 3), and the ball on being thrown up is struck with a back-handed sweep, which will take effect on its left side and impart a spin to it. This service is most useful when used from the left-hand court, as its tendency is to pitch close to the side-line, the spin that is on it carrying it still farther

away, and necessitating a difficult back-hand return, which it is not easy to make severe. Even when delivered from the right-hand court it is effective if the ball alight near the court it is elective if the ball alight near the half-court-line, the breaking away of the ball to the back-hand being disconcerting, and frequently resulting in an easy return, even if it be not crossed too much, and so put out

of court at once. As a general rule it is safe to put the second service to the opponent's back-hand from the right-hand court. If it be put to the fore-hand and rises to any height it is very easy for the opponent to tap it along your side-line, the same course being open to him if you put an easy one to his back-hand from the left-hand court. The

importance of the second service is very little recognised, but those players who have found it out reap the benefit, and people wonder how it is that they win. A good second service on one side and a poor one on the other are quite sufficient to decide the issue of a match.

(To be continued.)

BRITISH BEES AND WASPS.

BY THEODORE WOOD, F.E.S.,

Author of "Out with a Sweep-net," etc.

VERY few of us have the smallest idea how many British bees and wasps there are.
We speak of the hive bee, "the" humble bee, and "the" wasp; and we possibly include the hornet. But we seldom realise that two out of the four are merely family titles which we become importable were titles, which we bestow impartially upon a large number of species.

Now there are really a great number of British bees, and a fair number of British wasps. There are social bees and solitary bees, burrowing bees and boring bees, nest-making bees and parasitic bees; and, in the same way, there are social wasps and solitary

wasps, burrowing wasps and boring wasps, building wasps and non-building wasps. And, as both bees and wasps burrow in various ways, bore in various ways, bnild in various ways, and feed in various ways, the study of their habits and history is an occupation which was call later the study of which may well last a man for a life-time.

Let us begin with the bees, passing over the hive bee altogether as being a kind of do-mesticated animal, no longer living in a state of nature. And first let us see something of the solitary bees.

These differ from the social species in a very important particular, for there are no "workers" among them to ease the female of her labours, and leave her free for the allabsorbing task of egg-laying. Males and females only are born, and as no nests are made, uo combs fashioned, and no stores laid up, they are not nearly such interesting creatures as some of their social relations. Still, however, there is a good deal to be learnt about them, and the habits of one or

two are very curious indeed.

There is Halictus rubicundus, for example, which makes a tunnel in the ground with a number of chambers opening out from either side of it, in each of which an egg and a liberal supply of pollen—or "bee-bread"—are placed. There is Andrena convexiuseula (I must apologise for using all these Latin names, but as most bees possess no English ones, what am I to do?), which is greatly persecuted, like some of its relations, by a little beetle called the *Stylops*, which burrows into its body, and there lives quite happily. Whether the unfortunate bee is equally satisfield is another question. Cilissa hamorrhoidalis can't get on, it seems, without bluebells, which it honours with its exclusive patronage; and Dasypoda hirtipes is a kind of apiarian Esan, clothed as to its limbs with long and shaggy hair.

Then there are a group of bees whose de-light it is to lay their eggs in other bees' nests, and which, so far from possessing no popular title, rejoice in no less than three. They are called Cuckoo Bees, from their way of handing over their parental duties to other people; Wasp Bees, from their likeness to those interesting insects: and Naked Bees, from the fact that they do not possess the brushes and other pollen-gathering apparatus with which most of their relations are provided. These, of course, they do not require, as, taking no care of their offspring, they are

not obliged to lay up a supply of food.

Osmia bicolor, representative of a family of ten or so, is greatly attached to empty snail-

shells, which save it the trouble of burrowing when it wants to lay its eggs. In the extreme point of the shell selected it lays an egg, and then builds it in and lays another. This in its turn is built in in the same manner, and so on until the shell is filled up, each chamber being duly supplied with honey and pollen for the inner grub of its inhabitant when it makes its appearance. And the inmates of the outer cells, which are always males, very thoughtfully complete their development first, and allow those within to pass through their empty apartments. Thus each has but one doorway to open. Number one cuts one doorway to open. Number one cuts through the outer barrier, and emerges a free bee. Number two breaks through into number one's room, and leaves by the door already provided. Number three ents a hole in number two's wall, and finds two doors already open. And so on.

Another Osmia burrows into bramble stems, and makes a series of cells by scraping out the pith, while a third-a hardy Scotsmanfastens its chambers to the under surfaces of stones. Then there are the Leaf-cutter Bees, which burrow into wood, or into walls, or into the ground, and line their tunnels with fragments carefully cut from certain leaves; and the Hoop-shaver Bee, which scrapes off the woolly down from divers hairy plants, carries it off to her tunnel, and makes her cells of it. And lastly there is Eucera longieornis, which rejoices in a pair of antennæ about as long as those of any two other bees

put together.

The Social Bees are much more curious. They believe in "workers," for one thing, and the first idea of the queen when she sets to work at egg-laying is to provide a goodly number of those useful creatures. And when they appear, almost the whole work of the nest is handed over to them. The male, or "drone," does nothing at all; the female, or "queen," lays eggs; and the workers, or "neuters," which are really undeveloped females, make the cells, distil the honey, counts the way feed the years and early in secrete the wax, feed the young, and combine the functions of builders, purveyors, soldiers, nurses, executioners, and any number of other officials of greater or less importance. And they are undeniably clever creatures. They can sting in right of their sex—for among insects it is only the gentler portion of the community which possess this enviable faculty. They can labour steadily on for hours together, apparently from a mere over-whelming sense of duty, and without hope of reward. They can strike angles as truly as if they possessed a thorough knowledge of Euclid and Trigonometry. And, last but not least, they can bestow the great gift of royalty at will upon the helpless infants committed to their care.

For every grnb, until it is three days old or so, is a possible queen; its future state of life so, is a possible queen; its future state of the depends entirely upon its food and the manner in which it is treated. If it is to be a worker it is dieted upon the ordinary "beebread." But if it is to be a monarch it is regaled right royally upon a special jelly, its cell is enlarged in correspondence with its exalted rank, and it is tended with a respect and reverence which otherwise would never fall to its lot. And it always happens that if the supply of queens should from any cause fail, the want is made good by the clevation of a number of worker grubs to the higher

Of social bees we have a good many. There is the Carder Bee, for example, one of the great Bumble family, which builds a nest upon the ground of moss, leaves, grass, etc. drawing the materials through her legs very much as a carder "cards" wool. The inside of the nest is lined with wax to render it weather-tight, and beneath this umbrella-like shelter a number of cells are made, and an egg laid in each. These cells are not in the least like those of the hive bee, but are oval, and are laid about at random.

The Wood Humble Bee burrows into the soil, and lightens her labours whenever she can by taking advantage of a deserted monsehole or a natural hollow in the ground. cells are brown and oval, and are piled care-

lessly into a rough heap.

The Stone Humble Bee prefers a stone-The Stone Humble Dee pieters a stone heap, and is much aggrieved if any intruder ventures to approach its habitation. Those who hold that "bumble bees don't sting" are hereby recommended to try the experimental this experiment. ment of harrying a nest of this species. test is a most satisfactory one, and is warranted not to fail. This insect is perhaps, more familiar to most of us under the title of the "red-hipped" humble bee.

Then there is a very singular parasitic bee, called Apathus barbatellus, which lives in the-

nests of the Common Humble Bee, seems on perfectly friendly terms with the lawful inhabitants, and is possibly kept by them as a sort of pet. And, lastly, there is the famous

Hive Bee itself.

On this, however, our space will not allow us to linger, and so we pass to the Wasps.

Beginning again with the solitary species, there are only two which call for special mention, the first of which is the well-knowu Odynerus melanocephalus. This insect burrows into rose or bramble stems, after the manner of the Osmia bee already mentioned. digs out the pith in such a manner as to form a series of cells, places an egg in each, and then sets busily to work to hunt up small caterpillars, to serve as food for the future young. For wasp grubs are far more fasyoung. For wasp grubs are far more fas-tidious in their tastes than bee grubs, and honey and pollen have no charms for them.

The second of the two species referred to is also an Odynerus, and is generally known as also an Outpureras, and is generally known as the Mason Wasp. And a genuine mason it really is in a small way, not only digging out tunnels in sandy banks, and pouring out a liquid from its mouth which causes the walls or "bind," but rolling up the sand which it removes into pellets, and forming with them a short tunnel outside the entrance. This tunnel is usually about two inches long, and rather reminds one of the awning which is

sometimes put up outside a church door for the use of a bridal party.

Of Social Wasps we have but few, and most even of these are known only to practical outside and the state of the sta tical entomologists. But two at least are universally familiar, one of which is the Common Wasp, and the other the Hornet.

Many of us have no doubt made acquaintance with the nest of the former—perhaps also with the stings of its inhabitants. Almost always in a hole in the ground do we find it, generally at the roots of a tree or a decaying stump; and not uncommonly does it attain to dimensions really portentous. As many as 30,000 inhabitants, for instance, may be sometimes found in a single nest. But great results, as we all know, very often spring from small beginnings, and this mighty spring from smart beginnings, and this highly host, together with the dwelling which it inhabits, owe their origin to the persevering labour of a single queen. Early in the spring she made her appearance, and having pitched upon a suitable spot — very likely choosing the deserted burrow of a mouse or a field vole
—set to work to enlarge it to her liking.
The next step was to fasten a small pillar of paper-formed by gnawing and chewing decaying wood-to some projecting root in the roof, and at the bottom of this pillar to build a cell. After this the indefatigable queen built two more cells, placed an egg in each, and then erected a kind of umbrella-like shelter over all three. Then followed more cells, more eggs, and more shelter, the old "umbrella" being periodically cut up and utilised in making a new and a larger. And so on until the industrious queen found therself the centre of a large colony, all en-

gaged in building and in various duties for the commonweal.

Space will not allow us further to enlarge upon the beauties, architectural and otherwise, of this wonderful nest, and we will therefore pass to a consideration of its inhabitants

These, like those of a beehive, are of three kinds—queens, drones, and workers. The latter always make their appearance first, and bear the lion's share of the work of the nest, the delicate duty of egg-laying being thenceforward the principal task of the queen-mother. And it is a curious fact that if this exalted dame should die before the other queens are born, the faithful workers

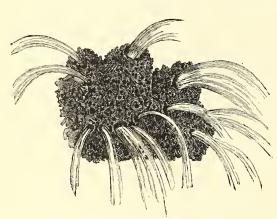
work no longer, lose their appetites, and die.
Provided that no such calamity occur,
however, a large batch of queens appear
about the end of August, together with the drones, which last are by no means so slothfully inclined as the drone bees. Their task is to clean out the nest as often as required, to bury the dead, and generally to make themselves useful. And therefore they are not stung to death by the workers, like their bee cousins, but are permitted to live and labour on until the frost makes a clean sweep of all but the future queens. These lie torpid but the future queens. These lie torpid through the winter in the most sheltered situations which they can find, and those

which survive are the nest-makers of the following season.

Very like the common wasp is the German Wasp, which may be known by the three black spots which adorn the first segment of the abdomen. This species builds its nests with sound instead of decaying wood, and so is rather destructive. The Tree Wasp hangs its nest to branches, sometimes those of trees and sometimes those of bushes, and a very delicate and yet weatherproof edifice does it construct. The Norway Wasp follows its example, and makes a very similar nest, while the Hornet, giant of the wasp family, affects hollow trees and outhouses, wherein it constructs its abodes of rougher and thicker "paper" than that manufactured by any of its smaller kinsmen.

There is yet much to be said concerning these most interesting insects, their food, their wings, their stings, their ways and doings. But space is limited and editors are stern, and already have I overrun my allotted limits. Yet, even at the risk of drawing upon myself the wrath of him who presides over these pages, I will occupy just five lines more, and advise those of my readers who may be in want of an amusing and instruc-tive occupation for their leisure moments to take up the study of our British Bees and

HOW TO SORT THE ANIMALS.

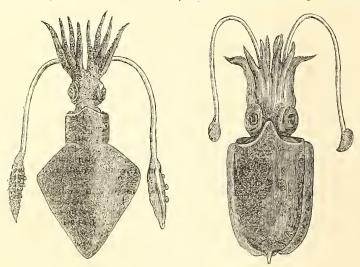


Protozoa: Sponge.



Cœlenterata: Hydrozoa, Medusa.

HE railway clerk who would not charge are afraid that there are a good many boys for the carriage of a tortoise because it and men who would be puzzled to class the



Mollusca: Cephalopod.

was "an insect" is doubtless familiar to tortoise correctly. We have even heard it many. His mistake was langhable, but we assigned to the "class of quadrupeds," and

the accuracy of the classification triumphantly maintained in spite of the awkward fact that no such class as the quadrupeds now exists.

This is but one example among thousands of the neglect meted out to all that has been done during recent years in zoology. Lecturers may lecture, and writers may write, but to the world at large the "natural history" of the last century remains unshaken. It is not easy to convince people that science is always advancing, and that as facts multiply theories must change.

But lct us come to close quarters. Here are sixteen animals, how shall we sort them

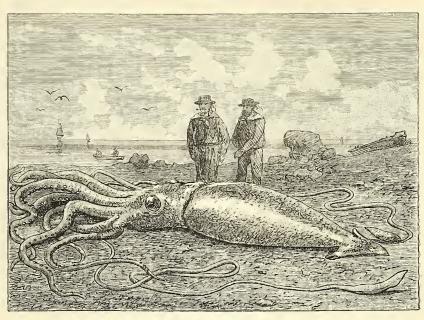
out? As they all live in the sea, some one will of course settle the matter right off by calling them fish! Alas! It is not all fish that swims in the sea. Take the sponge, for instance. "Sponge?" says some one. "Why a sponge is a vegetable!" By no means. It a sponge is a vegetable!" By no means. It is an animal, and not the lowest in structure. It consists of two parts: the skeleton we use for washing with, and the interior, which is cleared away in preparing the sponge for sale. The skeleton is made up of horny or flinty matter supported by flinty spicules, which probably also serve as a means of defence. Its inside tubes contain living sarcode, and it has the power of opening and closing its pores, thus showing traces of a closing its pores, thus showing traces of a

nervous system; and it can reproduce itself sexually and asexually. It belongs, in fact, to the Protozoa, the first of the six sub-kingdoms into which the animal world is now divided. The innumerable pores are of two kinds, as shown in our illustration—the smaller ones, by which the water is taken in; the oscula, or larger ones, by which it is poured out after passing through the system. On what it can take from the water in its passage the sponge feeds. To the same class as it belong the radiolarians, the forams, the ameba, and the monera. The Gregarins inhabiting the interior of insects and other animals form a lower class by themselves; and the Infusoria form a higher class divided into three orders, of which we need here say nothing.

The second sub-kingdom is the Colenterata.

The second sub-kingdom is the Uccenterata. It is divided into two classes, the first being represented by the jelly-fishes, the other by the corals and anemones. Of it we have two examples. Almost every bather knows the jelly-fish, and has felt the sting from its "thread cells." It belongs to one of nine orders into which are divided the Hydrozoa that form the first class of the Colenterata. that form the first class of the Colenterata. To this sub-kingdom are assigned the animals whose alimentary canal communicates freely with the general body cavity; whose body consists of two layers or membranes; and who have no heart or circulatory system, and generally no nervous system. In the first class, Hydrozoa, come all such animals as have the walls of the digestive bag coinciding with those of the body cavity; in the second, Actinozoa, the digestive bag opens below into the body cavity. In short, the jelly-fish have no stomach and the corals have. A coral with a stomach! Yes. And with them on the same grounds are classed the sea anemones. Nay, more. It is in the sea anemone that we get the first trace of a liver! Corals are but groups of anemones, but differ somewhat widely; the star corals, brain corals, and madrepores belong to the same order as the anemones, the Zoantharia; the pipe coral, red coral, and sea pens belong to the Alcyo-

The third sub-kingdom is the Annuloida. In it the digestive apparatus is completely shut have three representatives of the Echinoderms. Take the starfish as the type; bend up its rays and you get the sea-urchin. To



Mollusca: Cephalopod.

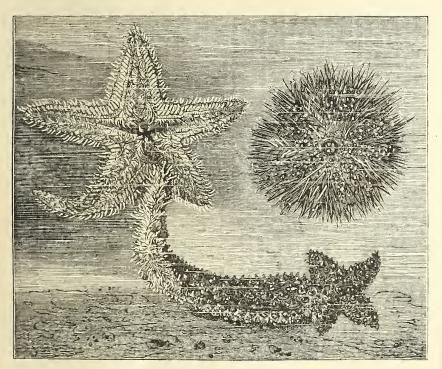
the same class belong the sea-lilies, and cucumbers, and brittle stars, all distinctive forms. The Scolecida are the tape-worms and wheel animalcules; they need not detain us.

The fourth sub-kingdom is the Annulosa. It is the easiest to remember of all. To it belong all the ringed animals with definite segments arranged one behind the other. To its first class belong the spoonworms; to its second class belong the earthworms, tubeworms, sand-worms, and leeches; to its third class belong the arrow-worms. These three

ration, two pairs of antennæ, and more than eight limbs carried on the thorax and abdomen. Then come the Arachnida, or spiders and scorpions, with aerial respiration, antennae converted into jaws, head and thorax amalgamated, eight legs, and limbless abdomen. Then come the Myria-poda, or centipedes, with aerial respiration and more than sixteen legs. Then come the Inseeta, with six legs. There are other distinctions, but the legs will do. There is no difficulty in sorting out the classes of the Annulosa.

We have now but two sub-kingdoms left, the Mollusca and the Vertebrata, for the animal world is divided into six sub-kingdoms, in five of which the subjects have no backbone. The last of the five is the Mollusca. to which belong the ordinary shell-fish and the cuttle-fish. There are seven classes of Mollusca, or rather three of so-called Molluscoida and four of Mollnsca proper. The first class is that of the Polyzoa, of which an example is found in the sea-mat that grows on oysters and scallops. All the Polyzoa have a sort of shell with the tentacles protruding, but they have no head, only a curious disk called a lophophore, with the mouth in the centre and the tentacles springing from. the centre and the tentacies springing from it, while over it langs a sort of lip called an epistome. The mouth opens into a gullet; then comes a gizzard and then the true diges-tive stomach. They have no heart, but the viscera are well developed, and so are all the vegetative functions. The first bend of the intestine encloses the nervous system, and on the stomach wall is a mass of yellow cellsdoing duty for the liver, which is very large

in all the Mollusca. (To be continued.) Do to-day's duty; fight to-day's temptation; and do not distract yourself by looking forward to things which you cannot see, and could not understand if you saw them. Enough for you that your Saviour for whom you fight is just and merciful, for He rewardeth every man according to his work. Enough for you that He has said, "He that is faithful untodeath, I will give him a crown of life." Enough for you that if you be faithful over a few things, He will make you reder over many things, and bring you into His joy for ever-more.—Charles Kingsley.



Annuloida: Starfish, Sea-Cucumber, and Sea-Urchin.

offfrom the rest of the body, and there is a distinct nervous system. It is divided into two classes, Echinodermata and Scolecida. We the other division the limbs are jointed.

classes form its first division; in them the

TOM SAUNDERS:

HIS SHIPWRECK AND WANDERINGS IN TROPICAL AFRICA.

BY COMMANDER V. LOVETT CAMERON, R.N., C.B., D.C.L.,

Author of "Across Africa," etc., etc.

CHAPTER XVIII.

At once withdrew, and soon was dressing some of the wounds of my men, when I was interrupted by a messenger from the ehief, saying that I must come to him at once, and as I walked to his hut I could see eanoes loaded with men coming from all the islands over which he ruled. When I arrived at his hut, instead of the friendly manner with which he had hitherto treated me, I found him severe and apparently angry, and on Ngöi asking him what he wanted with me, he replied that the man who just arrived brought him news had just arrived brought him news that the men who had left me had been spreading a report that I was a being whose friendship was fatal, and that the only way to prevent my causing harm to any people who were kind to me was to kill me. I asked if it were the ease that I would have let the tale-bearers leave me, and I appealed to the men who still held to me and my fortunes to say whether it were true. Old Ngöi, who knew something of the superstitions and religion of the people we were among, vouched for my being a good man, and said that I would be willing to put my character into the hands of their fetishmen to be judged, and that in the meantime I would stay in a hut by my self, only waited on by himself and Bill.

To this the chief consented, and canoes were at onee sent away to bring three celebrated fetishmen to sit in judgment on me, and I had to go away to the hut appointed for me with Ngöi and Bill. When I got there I asked Ngöi why on earth he had proposed to try me by the fetishmen, as they certainly could not be relied on. He said he had not acted without reasons, as the fetishmen would, if I paid them well, speak in my favour, and their demands would not be extortionate, as if I were condemned my goods would be divided among all the whole tribe, and they would only get a small share, and that it would be also most important to have them declare that the misfortunes which had befallen us had not been due to my presence, as this would dispel any lingering suspicions in the minds of the men who promised to follow me and prevent them losing heart in any danger that might happen to us in future. I saw that there was much reason in what he said, and told him to make the best arrangements that he

I felt but little inclined to sleep that night, for fear that Ngöi might fail in his endeavour to bribe the fetishmen, or might even be unable to speak to them before they took my ease into consideration, and at early daylight I was out of my hut eagerly watching for their arrival. At noon I saw a procession of half a dozen eanoes coming, and from them the first of the fetishmen and his retinue landed. He had all of his body and face that eould be seen painted white, and on his head he wore a huge erown of feathers. Round his neck was a necklace made of skulls of birds, bones, and all sorts and kinds of abominations, and his body was rolled up in a coloured grass cloth, which was arranged so as to form a sort of kilt, and secured round his waist by a belt of leopard-skin. In his hands, which he held behind his back, he carried a large bunch of native bells, which clanged as he walked.

He was followed by half a dozen men and women, the first of them earrying a large idol, and the rest mats and baskets, eontaining instruments of his craft. led his people three times round the island; and then, finally, he took up his quarters in the chief's hut to await the arrival of his confrères. Ngoi at once tried to get into communication with his followers, and soon he and Bill were able to report to me that they had so far prevailed that the fetishman had promised that nothing should be done until after we had been afforded an opportunity of making a bargain with him and the two others who were expected to arrive. These and their people arrived about two hours after the first, and I waited anxiously for the night, under the eover of which our negotiations were to be carried on.

Soon after dark one of the magicians, divested of all his trappings, came quietly and secretly to the hut where I was confined, and he I found was as much afraid of me and what I could do as if I were a real fetishman; indeed, when he saw me using a flint and steel to make fire to light my pipe, he never having seen fire obtained before except by the tedious process of rubbing two pieces of wood together, he was almost speechless for a time from a combination of fright and admiration. It was fortunate for me that he was in this humour, for he began by asking me to promise to do him no harm, and soon we had settled that for a comparatively small amount of eloth and beads, which he said I could give him openly the next day after the decision that I was a good man had been promulgated, he would declare that there was no harm in me.

Early the next morning the little floating island on which we were was surrounded by eanoes erowded with people eager to see three celebrated fetishmen together, and to hear whether, indeed, the strange white being who had come among them was good or evil; many also were desirous of consulting the oraeles on their own account, and had brought with them grass-cloth, fowls, meat, flour, and beer, to pay for their answers.

The three fetishmen came out into the centre of the village all deeked in their trappings and freshly painted, and seated themselves on mats which their attendants spread for them, each one with his idol in front of him, and the various accessories of his art lying close at hand, whilst their followers were seated behind them so as to prevent too close an approach of the uninitiated. I was stationed a short distance from them on while that if the efficacy of the charms

their right front, and opposite to me was the chief and his head men.

The proceedings commenced by a goat and two fowls being given to the fetishmen as a gift to induce their idols to speak, and these having been accepted the old chief got up and made a speech in which he said that so many days before, Mzungu and his men had come down the great river Cualaba, and had asked for and received his hospitality, and that the Mzungu had been a man with an open hand and had paid in many strange things which had never before been seen in that country for all that he and his men ate and drank. At first, all the men with the Mzungu were like brothers, but soon many began to com-plain, and the Mzungu told them that they could go on their way, and gave them many things that they might buy food on their journeys. Soon after they went they told the people amongst whom they went that the Mzungu was an evil spirit, and that though he might seem to have an open hand, he secretly worked so that all whom he had to do with might die, and they said that already he had caused the death of many. Now the question was, what truth was there in this, and the fetishmen had been called to give an answer. The three fetishmen whispered together and consulted various little figures and bits of your laws and little figures and bits of wood, horn, and shell, which they produced from baskets and gourds, and then, one kneeling close by his idol, put a necklace round its neek and rubbed pipeclay on its face and red powder on its lips, and adjuring it to speak the truth, asked if the Mzungu was good or bad; and then, by ventriloquism, he made it appear as if the answer came from the idol that the Mzungu was good.

The other two consulted their idols in a similar way, and like responses were given, and then Ngöi, giving eloth and beads as the price of the answer, askel if I and my followers would arrive safely in our own country, and if our journeys should be prosperous. The answers to this were somewhat enigmatical, as we were told that all countries were the countries of good people, and we would find our homes in time; that in travelling there were always difficulties and dangers, and that those who were fated to overeome them would do so. Thank you for nothing, thought I, but Ngöi and Bill took these replies as being most favourable, and soon I saw that all my seven-and-twenty were in high spirits.

The principal business of the day being now disposed of, the other elients of the fetishmen were permitted to approach, one by one, and seek information as to their fortune in love and war, the future of their erops, their success in hunting and fishing, and also to buy charms which would ensure them good luck and protect them from enemies, wild beasts, and evil spirits, and I could easily see that those that brought most in their hands received the most favourable replies,

was to be measured by the nauseousness of the things composing them high prices

also purchased superior safety.

At last the performance was concluded, and the fetishmen, packing up their idols and magical paraphermalia, washed themselves, and were content to appear as ordinary individuals; and now when I was able to speak to them directly I found that they knew much more of the neighbouring country than any of their fellow-tribesmen, and when I asked one of them if he could show me where the gold came from, he volunteered to act as my guide, and said if I cared for pretty stones he would also show me a place where I could find some like one he showed me. This was a white and shining stone nearly as big as a filbert-nut, and I could not help thinking that perhaps it might be a diamond, and determined to go with him where they were to be found, as I thought, though I knew little of their real value, that a few would make me a rich man, besides enabling me to send up enough money to Benguella to repay Seuhor Ferreira and Guilhermé's father most handsomely for all their expenses in fitting out the expedition.

It did not take long for us to prepare for the road, and the next morning we landed on the mainland, and following our guide, struck away boldly to the north-east. At first we marched through a hilly and wooded country, but after passing through it we came upon open and grassy plains gradually rising to-wards the east. Through these ran many

streams, and two days after leaving the lake we halted at the sources of one of these, and here our guide told us that the yellow stones we wanted were found.

I soon set to work to dig and grub, and on the first day that we were there I found enough gold in small nuggets, varying from the size of a walnut to that of a No. 4 shot, to fill a gourd which might have held about a quart and a half. I thought that this—the reader must remember that California and Australian goldfields were not then being workedwas getting rieh quiek, and next day we spread ourselves more over the ground, and were rewarded by finding much more. When our guide saw how eager I was to eolleet this to him valueless stuff, he said that if he had known I wanted to load my men with it he would have taken me to a place where it was much more plentiful, and then for two days more we marched north-east, and each night at our eamping-places we found gold in the springs from which we got our water, but on the third day we came to a place where we found a large dry gravelly expanse on the banks of a stream, and which our guide told us was flooded in the rains, and a short way beyond we could see a steep range of hills from which this and other streams took their rise. Among this gravel, and in the elay underneath it, which overlaid a bed of rock, we found gold in abundance, and as we worked eloser and closer to the hills so the larger and more plentiful did the pieces become. As I saw this was the

ease I worked up towards the hills in hopes of finding where the gold came from, and was rewarded by finding two monster pieces, each of which was so large that it required two men to earry it. I felt as if I could not leave a spot where so much wealth was to be had almost for the picking up, but I saw that we must go on our journey if this gold was ever to be useful to us, so I disearded all that we could possibly spare of our other belongings and gave them to our guide, who was thus repaid beyond his wildest dreams or expectations, and said that as we had been so eager after these yellow stones he had forgotten to tell me where the hard white ones where when we passed, but that he had some with him which he would give me in return for my lavish presents, and gave me a small bag of skin containing as I counted them fifty-seven most beautiful crystals.

The guide said that our way now lay over the hills in front of us, and that he would have to leave us as the people on the other side were hostile to his tribe, but that we as strangers might probably pass in safety. More danger, indeed, he said was to be apprehended from wild beasts, which were extraordinarily numer-

ous, than from the people.

We thanked him for all he had done for us, and then parted mutually well pleased, for I saw myself in my own idea as rich as a man could be; and he had cloth, beads, and wire enough to last him for all the days of his life.

(To be continued.)

OUR PRIZE COMPETITIONS.

(NINTH SERIES.)

Jubilee Illuminating Competition.

DY reference to page 496 it will be seen that we thus announced this subject: "We hereby offer Four Prizes, of Two Guineas, One Guinea and a Half, One Guinea, and Half a Guinea respectively, for the best Illumination (in oils or water-colours) of the words, the wish, we would hope, of every heart, in regard to our beloved Queen: 'The Lord bless times and the four beloved in each class. First division, from 19 to 24: second division, from 15 to 19; third division, from 12 to 15; fourth division, all ages up to 12. The highest Prize will go to the class showing the greatest merit. Competitors are not prohibited from using purchased designs, but the colouring must be wholly their own, and, other things being equal, the preference will be given to original work throughout. The size, material, etc., are left to the choice of competitors."

After the most careful scrutiny and comparison of competing claims to pre-eminence, we are able with confidence to publish our Award:—

SENIOR DIVISION (ages from 19 to 24).

Prize-Two Guineas.

This prize will be divided equally between the two

This prize will be divided equally between the of following competitors:—

FRANK ERKEST WOODHEAD (aged 21), 7, Sixteenth Avenue, Tong Road, New Wortley, Leeds.

HENRY CUMBERLAND (aged 19), 20, York Road, Edglands, Ed

baston, Birmingham.

CERTIFICATES.

[The names are arranged in order of merit.]

WILLIAM OSMOND (aged 29), High Street, Taunton. EDWARD LOFT FREEMAN (aged 221), The Mount, Southern Hill, Reading.

VICTOR W. BURNAND (aged 19), High Street, Poole, HAROLD LAMPHIER DIXON (aged 19), 94, Shaw Street,

N. M. EMBERLIN (aged 20), 4, Magdalon Street, Oxford.

THOMAS HENRY SMEDLEY (aged 20), Nottingham Road, Stapleford, Notts

W. DEEKS (aged 19½), 81, Haverstock Hill, London, N.W.

WILLIAM JENKS (aged 23), Wharf Cottage, Castle Foregate, Shrewsbury.

ROWLAND FREDERICK OXLEY (aged 20), 24, Westbourne Terrace, Barusley.
William Shaw (agcd 193), care of Mr. Hall, 81, Pope Street, Birmingham.

GEORGE WALLIS (aged 23), Ebenezer Cottage, St. George's Road, Bristol.

George A. Smith (aged 20), 75, Bartou Terrace, Glou-

NATHAN BALL (aged 223), Heanor, Nottingham. EDWARD DUNCAN PAGE (aged 21), 43, Parkfield Street, Islington, N.

WALTER SHEPPARD (aged 20), Brent Knoll, Bridgwater, Somerset.
HERBERT D. WHEATLEY (aged 22), 31, Sydney Street,
Stockhop on Tages

SECOND DIVISION (ages from 15 to 19).

Prize-One Guinea-and-a-Half.

Iu this division, again, the prize will go, in equal shares, to two competitors:--

GEORGE HERBERT PEET (aged 17), Cheltenham Parade, Harrogate, Yorkshire.

ALBERT EDWARD MORTON (aged 18), 30, Delph Mount, Woodhouse, Leeds.

CERTIFICATES.

FREDFRICK JAMES HOLLINGWORTH (aged 15½), 9, Eleanor Street, Fartown, Huddersfield. Archer E. Leggatt (aged 17), 25, Grenville Place,

Brighton, Sussex.

FREDERICK ARTHUR PRICE (aged 16), 63, Chatham Street, Edgeley, Stockport.

HARRY GRAN GRAY (aged 15), 1, Lake Villa, Gresford, uear

WILLIAM A. HEATH (aged 15), 31, George Street, Balsall Heath, Birmingham. ALEXANDER MALCOLM (aged 16), 7, Leslie Place, Edin-

REGINALD CLIFTON MILLER (aged 18), 40, Wedmore Gardens, Upper Holloway, N.

WILLIAM GIBBONS (aged 16), 19, Spencer Street, Halton Road, Islington. ARTHUR GEORGE COLMAN (aged 17), 8, Mortimer Street, Regent Street, London, W.

GEORGE ISAAC COMBER (aged 16), 31, Warleigh Road,

Brighton. ALFRED RAYMOND PIGOTT (aged 17), 4, Northfield

ALERD KAYMOND FIGOTT (aged 17), 4, Northfield Terrace, Cheltenham.

ROBERT LESLIE ARMSTRONG (aged 16), Byland House, Chelteuham Parade, Harrogate, Yorkshire.

WILLIAM H. MARTIN (aged 15), 35, Broughton Street, Queen's Road, Battersea.

THOMAS DUBBELS (aged 15), 51, Cornwallis Street, Liverpool, w.

FRANK THOMAS WILLIAMS (aged 16½), 5, Havelock Road, Well Street, South Hackney, London, E. EDWARD CORDEROY HIGGS (aged 15), Homeville, Christchurch Road, Streatham Hill, S.W.

GEORGE WILLIAM SINCLAIR (aged 15), 11, Grace Terrace, Sunderland.

HENRY A. SAUL (aged 17), Dover House, Fairlop Road, Leytonstone, Essex.

SAMUEL J. BECKETT (aged 17), 163, Dalston Lane,

Hackney.

RNEST F. Vowles (aged 18), 69, York Road, Mont-ERNEST F. VOW pelier, Bristol.

G. W. JOHNSON (aged 17), Campsie, Alexandra Road, Stoneygate, Leicester.

HENRY A. DAWES (aged 18), Burfield Lodge, Belgrave, Leicester.

FRANK S. DOBBS (aged 16), 1, Anley Road, West Kensington Park, London, W.

HARRY PEEL (aged 15), 18, William Street, Redditch, Worcestershire.

HARRY HESELDIN (aged 17), 3, Kilton Street, Battersea Park Road, S.W.

WILLIAM EDWIN PINCOMBE (aged 16), 13, Embleton Street, Lewisham, London, S.E.

THOMAS MARSHALL TENNANT (aged 16), 19, North-West Circus Place, Ediuburgh.

ALBERT E. SELF (aged 16½), Anglesea House, Devonshire Place, Eastbourne, Sussex.

HERBERT ASTINGTON (aged 18), 66, Whitgift Terrace, Wandle Road, Croydon.

FREDERICK HAMMERSLEY BALL (aged 16), Sandiacre, near Nottingham.

GEORGE ERNEST PIKE (aged 15), 3, Cambridge Terrace, Ashley Road, Bristol. GEORGE JERRAM (aged 16), 13, St. Mary's Road, Wal-

thamstow, E.

W. J. PAWSEY (aged 18½), 43, Monier Road, Victoria Park, E.
WILLIAM HENRY BLAKE (aged 17), 1, Hyde Villas, Arlington Road, Surbiton, Surrey.

G. T. WILES (aged 17), 35, North Street. Hull.

B. EALES (aged 17), 365, Cooksey Road, Small Heath, Birmingham.

ERNEST WALKER (aged 15), 165, Castle Street, Edgeley, Stockport.

HARRY PENFOLD (aged 16), 41, Shepley Street, Lonsight, Manchester.

GEORGE BAIN (aged 17), 8, Plymouth View, Manchester. ALFRED LEE (aged 16), 92, Blackfriars Road, S.E.

HERBERT KAISER (aged 161), Somerville House, Seacombe, Cheshire.

S. M. MARTINEAU (aged 15), 4, South Road, Clapham Park, S.W. SAMUEL MANNERS (aged 16), 34, India Street, Mont-

Samuel Ernest Sadler (aged 17), Forester Cottage, Wilson Street, Derby. CHARLES CLAYDON (aged 16), 46, Appack Road, Brixton GEORGE PICTON HARLOW (aged 18), 169, Kingsley Road, Princes Park, Liverpool.

ROBERT MCARTHUR (aged 16), 134, Welliugton Street,

MARK SIMPSON (aged 17), 6, Queen Street, Galashiels.

ARTHUR ATTACK (aged 15), 39, Hood Street, Kettering Road, Northampton.

WILLIAM THOMAS DONE (aged 18), 33, Milton Street, Hanley, Staffordshire.

DAVID ELCOMBE (aged 161), 248, Goldhawk Road, Shepherd's Bush.

JOSEPH DAVISON (aged 17), 2, Bradley Passage, Kirkgate, Huddersfield.

HARRY MACKEELL (aged 18), Bushey Paddocks, Hampton Court, Middlesex.

EDWARD HERBERT COLES (aged 17), 44, Bignold Road, Forest Gate, Essex.

SUTHERLAND C. KEMP (aged 16), 16, New Buckleigh Road, Streatham Common, s.w.

WILLIAM THOMAS WALTER (aged 16), Kingston Villa, Rainbow Hill, Worcester.

FRANKLIN K. KENDALL (aged 17), 1, The Paragon, Blackheath, S.E. E. L. BUTCHER (aged 18), 19, Scotland Street, Edinburgh.

VICTOR G. SHILSTON (aged 15), 14, Wentworth Place, Newcastle-on-Tyne.

JAMES H. CRAIOIE (aged 17), 11, Grantley Street, Shawlands, Glasgow, N.B.
W. T. REYNSLDS (aged 17), The Hollies, Tregonwell

W. T. REYN@LDS (aged Road, Bournemouth.

GEORGE WILLIAM HOWARD (aged 17), 124, Caledonian

Road, King's Cross, N.
WALTER HARRY JUDD (aged 16), Railway Station,
Twickenham, Middlesex.

WILLIAM J. SMITH (aged 16), 2, Avenue Road, Belgrave, near Leicester. Walter J. Penn (aged 18), 51, High Street, Tunbridge Wells, Kent.

CHARLES FREDERICK GILL (aged 16), 18, Herbert Road,

FRED BAKER (aged 16), 43, Bromfelde Road, Clapham,

ALBERT WILSON (aged 17), care of Mr. Wilson, Master Royal Hibernian School, Phœnix Park, Dublin.

ERNEST J. DENE (aged 16), 3, St. Clement's Road, Jersey.

HENRY GEORGE JENKINSON (aged 18), 64, Cannou Street,

R. S. JOHNSON (aged 15), 68, Seaside Road, Eastbourne. ARRHUR HORACE STEVENS (aged 16), 5, Glensdale Road, Brockley.

CHARLES HERBERT ACTON BOND (aged 173), care of Langley and Burke, architects, 15, Toronto Street, Toronto, Canada.

GEORGE E. SIMONS (aged 17), 80, Castle Road, Prince of Wales's Road, Kentish Town.

JAMES HALLIDAY (aged 17), 33, Landseer Road, Liver-

ROBERT MACONOCHIE (aged 16), 75, St. Stephen Street, Edinburgh.

THOMAS ALLEN (aged 18), Gladstone Terrace, Kirk-caldy, N.B. JOHN CAMERON HAY (aged 16), 50, West Street, Glasgow, South Side.

FARABAY CLARKE (aged 17), Ingramgate, Thirsk.

RIGHARD ARTHUR MILL (aged 18), 30, Richmoud Street, Plymouth.

JAMES FAIRCLOUOH (aged 13), 30, Scotswood Road, Newcastle-upon-Tyne.

JOHN C. STEVENSON (aged 15), 16, Janefield Place,

THOMAS ELLIS (aged 151), 37, Castlegate, Jedburgh, N.B. W. A. STEWART (aged 17), 224, Church Street, Walkeren-Tyne.

(To be continued.)



P. O.—There is a case given by Parry of a Polar bear being found swimming in the open sea twenty miles from shore, and with uo ice in sight ou which it could not

L. H. E. HALLIDAY.—All nonsense. You can learn to play the violia at any age so long as your fingers are supple enough, and it is as well to wait till you can begin on a full-sized instrument, for which you should give between two and three guineas. You may get a violin cheaper, but this is a fair average.

SAND MARTIN.—1. Muriatic acid is used in soldering. 2. Two-fifths of the water-line from the stem, but position varies with the build of the boat. 3. See back. 4. Try blacklead and paraffin.

Young Naturalist.—1. It will not hurt the specimens to polish or varnish the cabiuet. The odour may keep away vernin. 2. The best way is to have two specimens, one up and one down. If you have only one specimen keep the wing vertical. 3. Birds' eggs are kept best in a cabinet. 4. Wipe the shells with a great rag. 5. Perheur. with a greasy rag. 5. Perhaps.

CARDONO AND MACOMO.—1. The index of the second volume is not in print. 2. It is said that if you hold a kettle of boiling water on the palm of your hat. It will not hurt you, but we never tried it, nor do we know any one that has done so! Better take it for granted. granted.

CHEMIST.—The article on the Blowpipe was in No. 81,

There are better rowing-clubs at Putney. The Hammersmith clubs are the Kensington, at Biffen's, entrance fee half-a-guinea, subscription thirty shillings; Leander, at Biffen's, subscription two guineas; and Occidental, at Biffen's, entrance fee half-a-guinea, subscription thirty shillings. Get Dickeus's "Dictionary of the Thames," price one shilling, published by Macmillan and Co. It gives particulars of all the river clubs. PERCY .-

E. E. M. -You have to enter for general service, and are appointed, if found suitable, to fill vacancies. Apply for papers to the Secretary, G. P. O., St. Martin's-le-Grand.

AN ENGLISHMAN (living in Germany).—1. B A. are the initials of Bachelor of Arts; M.A. of Master of Arts; D.D. of Doctor of Divinity; M.D. of Doctor of Medicine; and C.M. of Master of Surgery (Chirurg. Magist.), all of which are University degrees. F.R.S. is the abbreviation for Fellow of the Royal Society, our greatest scientific society; F.G.S. is the abbreviation for Fellow of the Geological Society; and F.R.G.S. stands for Fellow of the Royal Geographical Society. 2. There are the "Records of the Royal Horse Gnards," published officially. 3. No. Such a competition would do uo good, unless all readers took part in it.

TENNIS.—The Eclipse is a good marker, but new inventions are appearing almost every month. Call on Mr. F. H. Ayres, 111, Aldersgate Street.

APPRENTICE DRAUGHTSMAN.—1. If you wipe your instruments on a rag greasy with vaseline they will never rust. 2 Leave the moles alone; if you remove them a scar will remain.

J. DAVIDSON.—A calendar is an orderly list of things, and the word is used in several senses; an almanac is a list of the days in the year. The head on the top of the jester's staff is the bauble.

G. W. H. COLLECTOR. — The coin is Scotch, and was struck in the reign of Alexander III.

state in the tegr of Ackanded the terms are the beam—that is, the extreme outside breadth—in inches, and also measure in inches the water-line, that is, the length between the points on the bow and sternpost up to which the water comes when she is afloat with her sails and all ready to start. Add the length to the beam, multiply the sum so obtained by itself, multiply that result by the beam, and divide that result by 1730. In algebraic formula tonnage=(L+B)*×B÷1730.

H. G. WARDALL.—1. The Pennell flight is the best of the four you send—at any rate, it has been found to make the biggest bags on the Thames. See our articles on Fishing Tackle in the third volume. 2. Answered a few weeks ago in these oolumns. 3. To polish fretwork smooth the wood first with glasspaper, and then give it a coating of size. Then varnish, beginning at the top and working downwards. When the varnish is dry, rub it over with glasspaper and give it a coat of size; then varnish again, and when that is dry finish it with a brisk rub over of worn woollen rag. If you prefer French polishing you must size and polish and paper, and size and polish and paper, until you get the effect you require—but it is a long process.

G.—1. Bristol Grammar School was founded in 153I. It was removed to its present buildings in 1769. The grounds are about six acres. 2. The Parliamentarians stormed Bristol from the east. The headquarters of Fairfax were on Montpelier. The attack was made about two o'clock in the morning captured Lawford's Gate. Waller broke in between it and the Frome: Skippon and Pride got in close by the river; and Pride's men charged right away up Nine Tree Hill, where Prior's Hill Fort was playing fiercely upon them with great and small shot. The fort was scaled, the men making their way in through the portholes. See our article on Bristol in the part for last August.

TRINY.—You must get the volume in which "Jack and John" appeared. The story has not been published separately.

INK.—You can make ink for any of the graphs or copying processes by dissolving one part of aniline colour in seven parts of water and one of alcohol. Judson's dyes are aniline colours.

ADONIS.—1. The Black Watch were so called from the dark colour of their tartan. 2. The network of a snow-shoe is made of catgut, or sinew, or cord. For all sizes of feet they are about thirty inches long.

T. P. T.—Buy your sulphuric acid ready-made at any druggist's, or even oilshop. Its commercial name is oil of vitriol.

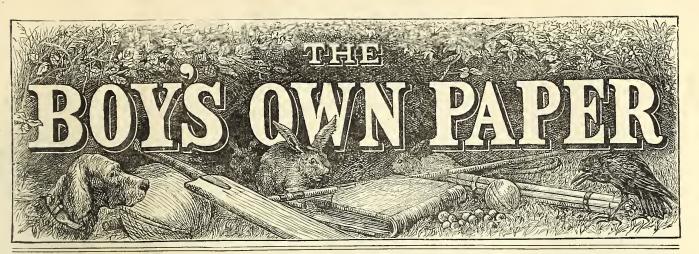
EMIGRANTIKIN.—There are all climates in Australia. It is a place nearly as big as Europe. At Kiandra, in New South Wales, snow falls from May to November sometimes for a month together, and many of the mountains are covered with snow all the summer. On the longest day snow forty feet thick has been known below the summit of Mount Kosciusko, which is Austraha's highest peak. Kosciusko is only 7,175 feet; it is therefore below the snow-line for the latitude, and the abundance of snow probably arises from the warm oceanic air current sweeping over a spot where there is rapid radiation through a pure, clear atmosphere.

PHOEBUS APOLLO.—The "seals" are wax casts of medals. One is in commemoration of John Huss, the founder of the Hussites; the other is a medal of King Henry IV. of France—"Henry of Navarre;" and the other is the medal of Sancroft, Archbishop of Canterbury, struck at the time of our revolution in 1888.

HUMMING EARS. — We do not answer medical ques-tions. You seem to have had good advice, but if you want to find the leading specialists you should look down the list of the staff of the largest Londou hospitals.

A SALT.—The Worcester, Conway, and Indefatigable are training ships for the merchant service, not for the Royal Navy. The only training ship for naval officers is the Britannia.

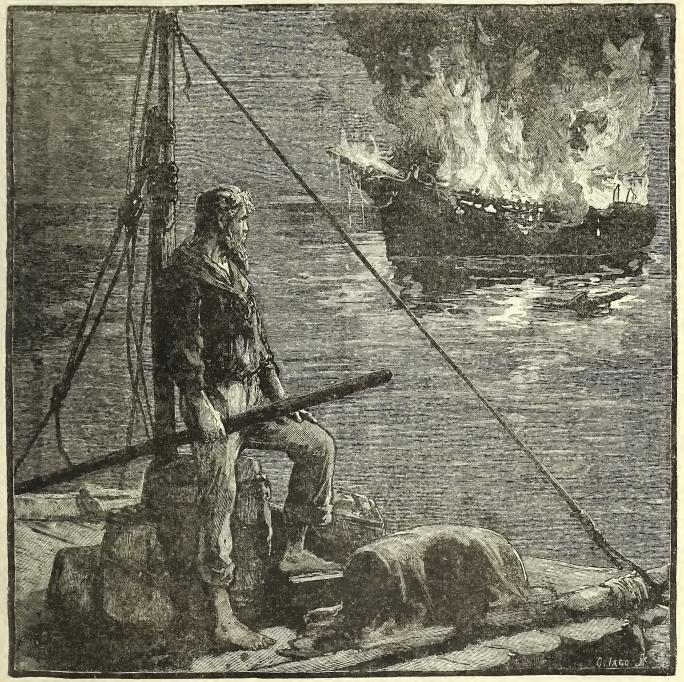
SILDTREE. —1. Whaling and sealing ships generally start in the spring from Dundee or Peterhead, and rendezvous at Lerwick. 2. Outsiders are occasionally taken, but, speaking generally, the crews are a class by themselves—and the trade is not an increas-WILDTREE, -



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SATURDAY, SEPTEMBER 10, 1887.

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The Last of the Ship.-p. 786.

ALONE:

A SAILOR'S STORY.

BY MAYNE BOLIN.

CHAPTER III.

A far and in what die wonder how drifted, and how much time had elapsed since the storm. The latter question puzzled me most, for on it depended the solution of the former. Without knowing the date, any observations I might take would be worthless, and how was I take would be worthless; and how was I to ascertain how many days had elapsed since that on which the hurricane struck since that on which the intribute structure is a which I remembered was the 18th of September. Suddenly the memory of the full moon of the previous night flashed upon me. Here was the solution of the difficulty. I had particularly strictly that the full by noticed that the moon was at the full by the perfect circle she formed, which on this night was almost imperceptibly roughened and broken on its western side, and I at once went below and lit the lamp and took down the Nautical Almanack from the book-rack. The moon was full on the 5th of October so it must was full on the 5th of October, so it must then be eighteen days since the hurricane which had wrought such disastrous changes in the fortunes of the Bessie. this calculation was correct, and it could not well be wrong, I had the means of finding easily my latitude the next day at noon. But as for the longitude, I knew the chronometers would long ago have run down, and my only resource was in a lunar observation.

Then came the query, Whither was I drifting? Glancing at the "tell-tale" compass above me I found the ship was heading north-west, and from that I knew the wind was at north-east. Then I remembered the constant bank of long narrow ridges of cloud, grey and hard-looking on their under-sides, and melting away into soft woolly white at their tops, piled tier on tier in symmetrical order, increasing in size and softness and whiteness as they rose from the horizon, till, detaching themselves from the mass, they floated overhead in great fleecy sheets of purest white. And I remembered the familiar appearance which they seemed to have when I first went on deck. I was in the north-east trades, and was slowly but surely drifting towards the coast of South America.

Then a new idea began to come upon me. What would ultimately become of me? Most probably I should be sighted from some ship and taken off; but if I were not? I had several times been aloft to the main cross-trees and had anxiously scanned the horizon, and once I had seen away on the eastern horizon a tiny white speck which I had well known to be a sail, but it had never got any nearer or bigger, and I had watched it fade away with heartbroken disappointment. And this might happen again and again, so long as I could only drift helplessly along. But why should such be my fate? Why could I not, when I had got the ship pumped dry and had regained my natural strength, rig a jurymast and have the ship under command and intercept passing ships? Ay, or for that matter, sail her single-handed to some port? The more I thought of it the more I became

enamoured of the idea and convinced of my ability to perform this stupendous task. Wearied in body, and with brain teeming with this tremendous idea, I went to bed and at once fell asleep.

As I awoke at daybreak I felt miser-

ably stiff and sore from the previous day's exertion; but, springing out of bed with feverish haste, I almost ran to the pumps and sounded, and found four and half feet, as on the previous night. The certainty that the ship was making no water gave me renewed courage to enter on the day's labour which lay before

At noon I got an observation of the sun, which placed me in latitude 28° north, and on referring to the log-book I found our latitude was 33° 5′ on the 18th of September; so I had drifted to the southward about two hundred and fifty miles since the hurricane, how much to the east or west I could only tell when I had found my longitude.

After a hasty dinner I resumed my work at the pump, and by eight o'clock that night I had reduced the water to three and a half feet.

As I now felt so much better and stronger I resolved to sleep below no more, but to remain on deck night and day, so as to be at hand at all times in case I was hailed by a passing ship; so I rigged a small awning from the com-

panion to the poop rails, and made my bed beneath it.

On the 10th of October I had the unspeakable joy of finding the pump "suck; which, being translated, means the water

which, being transaced, means the water was all out of the ship.

On the morning of the next day I got a lunar observation, and had cause to thank the captain with whom I had served the greater part of my "time" for the pains he had taken to instruct me in the working of this intricate calculation. I had found the watch belonging to the captain of the Bessie in a drawer in his berth; and as it was a very good one, with a centre second-hand, I found it very useful in noting the time of observations, and by its aid I was able to register the Greenwich time given by the "Lunar," and so set the chronometers going and subsequently find their error. My longitude brought down to noon was 32° 32' west, and the latitude 27° 34' north, and from this I found I had drifted true southwest four hundred and fifty miles since the memorable 18th of September. nearest land was the Canary or the Cape de Verde Islands; but the former were dead to windward, and the latter (at the rate I was drifting) would be by the time had got a jurymast and sails rigged. So I had not much hope of reaching either of them, as I well knew that, with the resources at my command, I should never be able to set sufficient canvas to beat the ship to windward.

My next care was to secure the main hatch, which I did by fitting some of the carpenter's boards over it, and nailing a sail over the whole; and then, as night was coming on, I decided to do no more that day, but to commence my jurymast

As I lay that night my brain was busy planning my great enterprise of the morrow. The only spars available were the main-topmast dash, which I determined to said down and walks into a fewer with to send down and make into a foremas dash, and a spare topgallant-yard, which we had passed down the main hatch on leaving port. This I decided would make me a very good foreyard; and I reckoned that, by taking a cloth or two out of each leach of a topsail, I should make a firstclass foresail.

The extreme length of the main-topmast was about thirty-five feet, and the hoist of the fore-topsail about fifteen, so

hoist of the fore-topsail about fifteen, so I should have plenty of room to set a three-cornered "flying" topsail over my foreyard. Full of these thoughts I fell asleep, and did not awake until four o'clock the next morning.

There was a very good "crab-winch," with double and three-fold purchases before the mainmast, and after reeving a heel-rope and "coming-up" the gear, I had not much difficulty in lifting the mast sufficiently to knock out the fid mast sufficiently to knock out the fid (which is an iron bolt or bar which holds an upper mast in its place), and by noon I had my spar on deck. After dinner I led a tackle from the bits on the low top-gallant forecastle to the topmast, and taking the fall to the winch I hove the mast forward, and with some diffi-culty and contriving, I got the head of it on the forecastle and the heel placed against the stump of the foremast. It took me until dark to get a stout tackle up to the main masthead with which to heave up my spar; to cut the shrouds, backstays, and stays to the right length, and to lash the heel of the spar from side to side to prevent its slipping clear of the foremast stump, and before I "knocked off" for the night I had all ready for heaving away.

Day by day I toiled on, and slowly and laboriously I overcame each difficulty, until I had my mast on end and securely stayed, the yard across, and braces, sheets, and halyards rove ready for setting my sails; then I, made a square foresail out of a spare topsail, and a triangular topsail from a mainstaysail.

I was careful to take daily observations, and each evening I worked out my position; and on this 16th day of October, when my sails were ready for setting, I had to decide the momentous question as to how I should steer when I made

sail and shaped my course.

My position at noon was 27° 27′ north latitude, and longitude 33° 48′ west. The nearest land was therefore still the Cape Verde Islands; but it was now utterly impossible to reach them. During the last few days the wind had gradually veered, and it now stood at east-northeast, and as the islands lay from me south-east I knew that with my small sails I could never fetch them. And I too well knew that I could not beat the ship to windward, handicapped as she was by scanty canvas. Glancing at the

chart, the nearest point I could hope to reach was in the West Indies, and they bore from me about west, some fifteen hundred miles. Although I could easily steer this course with my present wind, I was well aware that before I could reach any of the islands I should lose the trades and probably meet with westerly winds; and, moreover, there was the great risk of falling in with gales, or even hurricanes, which were so prevalent at that time of the year in those waters; and I knew that anything approaching a storm would again wreck me and leave me more helpless than ever. Nevertheless, I could not see any possibility of reaching any other land, and after long and anxious thought I decided to steer west-northwest for the Bermudas, and take my chance of reaching them in safety. into the night I weighed this chance, but look which way I would I could see no better hope; so before I slept I had quite made up my mind to try it.

At the dawn of day on the 17th of October I hoisted my sails with the helm up and headed the Bessie west-nor-With the fresh breeze my sails and pulled gallantly. What bellied and pulled gallantly. shifts I was put to to attend the helm and trim the sails as the ship paid off'! But after much running here and there, from the wheel to the braces and sheets, and back to the wheel, I at length had all trimmed fair, and had the proud satisfaction of seeing the Bessie forge ahead and gather way under her scanty

I abandoned all idea of eooking my food, for I knew that the steering would require my constant attention for as many hours each day as I could hold up and keep awake. However, as the weather was warm and there was an abundance of preserved cooked provisions on board, that did not trouble

Day after day I steered the ship from four o'clock in the morning till eight at night, and then I was reluctantly compelled to "douse" the sails and lay-to under the reefed mainsail. She steered so well, however, that I was able to take observations and work them up as I sat by the helm.

After some shifts I slung the log-reel from the mainmast to the shrouds and contrived to heave the log, and found I was making four knots an hour, and at this rate I should make in my day of sixteen hours sixty-four miles. If I sixteen hours sixty-four miles. If I could keep this up without mishap it would take me about twenty-four days

to reach my destination.

At length, on the 4th of November, the wind began to fall light, and I saw with some dismay that I was about to lose the trades sooner than I had anticipated. By noon it was nearly calm, with light airs of wind first from the north-east and then from the northwest. Now commenced the trying part of my single-handed navigation, part of my single-handed navigation, and with hurrying hither and thither, now hastily "lashing" the wheel in the necessary position and running to trim my yard and sheets, now back to the wheel, often only just steadying it in time to prevent her "catching aback" on the other side, by dusk I was thoroughly fagged out; so I lowered the thoroughly fagged out: so I lowered the foresail and topsail and let the ship come-to under the fore-and-aft sails.

When I had gone below to supper the last three or four evenings I had noticed

a faint, peculiar odour in the cabin which had somewhat reminded me of the smell of boiling pitch. However, beyond being slightly puzzled to account for it, I had not given it much thought; but to-night it seemed stronger and almost oppressive as I went down the stairs; but after I had been down a few minutes it appeared to pass off and I thought no more about it.

During the night the weather became squally and wet, and towards morning I saw several flashes of distant lightning. The squalls had become so heavy that I dared not set any sail forward, for I knew that if taken aback by one of them my crazy spars would come tumbling down about my ears, and so I had to stand and idly watch the clouds rise and break around me. By noon the squalls had become violent and frequent, and I could only chafe in idleness at the delay. I think it was about this time, when I had no planning or scheming, no busy battling with arising difficulties, no occupation for mind or body, that I first began to feel the loneliness of my position, and to long for the sight of a human face and the sound of a human voice. been forty-seven days in solitude, and as the day wore on this feeling grew upon me until I felt so utterly alone that the buoyant spirits which had hitherto kept me up so well deserted me. As night came on I became more despondent, and at dark the loneliness was almost unbearable. How was this all going to end? Should I ever be picked up, or reach any land. All this time I had seen but one ship, and that so far away as to preclude any possibility of my being seen, and might it not be so until I was overwhelmed in a storm, or perished in one of the many dangers which beset a sailor on the sea? Hitherto my every scheme and effort had been crowned with success, and this was the first real eleck I had met; and then the excitement and liaste in which I had made and carried out my plans, the tremendous labour I had undergone, and the long hours I had stood at the wheel, had doubtless over-wrought me in mind and body; and so I utterly broke down, and fell from an ecstasy of buoyant hope and courage to the most wretched despondency and

As the sun rose the next morning he revealed a curtain of unbroken purpleblack, spread in the south, and surrounded by an uneven arch of smoky-looking, ragged elouds, which were mounting rapidly and scurrying across the sky. The ship was heading about south-west, and on the left the newlyrisen sun and the fiery elouds which surrounded him shone red and blurred through a mist of rain, as if seen through On the right the black raingauze. elouds had not yet elosed in, but had left an open patch of blue, streaked with lofty wisps of pale-yellow and orange elouds of wondrous gossamer lightness, and brilliant with the reflection of the opposite sun, which reached them over the veil of the low, dark rain-clouds that were fast closing in and shutting out the bit of brightness, which shone through with brilliancy, enhanced by the dark

frame they made for it.

Rapidly the arch spread and shut out the light on either side, and down came the torrent of rain, surrounding the ship with a smoky film which seemed to rise from the sharp pitted wrinkles in the sur-

face of the water. And then the blackness and rain passed away to the right, and lights of wonderful hues stole into the sky from the ruddy sun struggling through masses of eloud to resume his sway. As his rays filtered through the rain on to the curtain-like squall in the opposite heavens, it assumed such a luminous violet as is rarely seen on clouds, and which melted into mauve ahead, and round to the left into rose, and from rose to orange and orange to gold, and so into the now undimmed splendour of the morning sun.

In the meantime the sea on the right had assumed a strange metallic lustre; the near sides of the wavelets were brilliant green, reflecting the gold of the sun until in places they were pale greenish-yellow; while their farther slopes were blackened by the shadows of the sombre squall-clouds which frowned above the violet arch, and whose lower edges were twisted and torn by the wind into fantastic curls of olive-coloured

smoke.

And so the squall passed away, leaving the sun in fierce splendour pouring down his scorching heat on the breathless, glassy sea. Peace reigned around me, and in the smooth slumbering waters and deep brilliant blue sky there was nothing to forewarn me of the terrible calamity which was so soon to come upon me; more terrible than anything which had yet befallen me, and which would render useless all the labour and pains I had taken to save myself and the ship.

Being drenched by the squall, I went down in the forecastle for a change of clothing; and on reaching the foot of the ladder I was astounded to find the place dim and hazy with a thin bluish vapour, which as I breathed it in had an unpleasant acrid flavour, and which made my eyes to smart and water, and caused a slight aching in my throat. It was unmistakably smoke, and as "there is no smoke without fire," I was puzzled to account for it. Filled with a nervous dread, I began hurriedly to search about for the state of it investigated to have the state of the search about the search about the search about the search account of the search about the search account of the search about the search account of t for the cause of it, imagining that I must have set something on fire and have left it smouldering in some corner. My search, however, was fruitless, so I went on deck and aft to the cabin. There, in a lesser degree, the same strange vapour filled the place, and a horrible fear began to come on me. Evidently there was fire somewhere, and where could it be but in the hold? and yet I could not see how that could be, since it was some days since I had been down there, and if I had accidentally set fire to anything it must ere this have either broken out into a visible flame, or have died out altogether Bewildered and terrified, I stood trying to guess the source and cause of the fire, when, glancing up, my eyes fell on the thermometer hanging in the skylight, and an idea struck me. Unhooking the instrument from its nail I attached it to a long piece of marline and went to the pumps. As I drew out the boxes a blast of hot air rushed into my face and a thin column of smoke lazily rose and carled in the still air. My dread now became a positive terror, and I hastily lowered the thermometer half way down the pump.
It came up showing 160 degrees! Then
I lowered it to the bottom, and when I pulled it up the glass tube was broken and the japanned tin case scorched and blistered with intense heat. My blood turned cold and I broke into a

clammy perspiration as the horrible truth burst upon me. My heart seemed to stop beating, and my knees shook beneath me with fear and despair. The cargo was on fire in the bottom of the ship, where I, unassisted, could never hope to reach it or do anything to extinguish it. It all came upon me as by inspiration: the coal being saturated when the ship was partly full of water, and being confined below, had heated until it had spontaneously ignited. And it must have been burning some days, as I remembered first noticing the smoke in the cabin nearly a week ago.

Recovering somewhat, I at once re-

placed the pump-boxes, for I well knew that the fire only needed the admission of air to cause it to burst out and envelop the ship. Well I understood the utter hopelessness of any efforts I could make to save the Bessie now, and all my labour and rigging and contriving had only been exerted to overcome other dangers while one was growing beneath me against which all I had done was useless. Almost paralysed with fear and horror, I stood dazed, face to face with this slowly approaching but certain death; nay, was it even slowly approaching! might not the fire burst through the decks at any moment and destroy the Bessie and me?

But on reflection the comparative coolness of the deck somewhat reassured me, as I knew that before the fire actually broke out it must become unbearably hot. But what was I to do? I knew that in a few days, perhaps a few hours, the ship would be enveloped in flames, and I had no boat! Death either by drowning or burning seemed now inevitable. Bitterly I thought of all my wasted efforts; was it only for this that I had toiled and struggled until I had overcome each difficulty and seemed in a fair way to save not only myself, but the ship and her cargo?

(To be continued.)

TOM SAUNDERS:

HIS SHIPWRECK AND WANDERINGS IN TROPICAL AFRICA.

BY COMMANDER V. LOVETT CAMERON, R.N., C.B., D.C.L.,

Author of "Across Africa," etc., etc.

CHAPTER XIX.

Now said to my followers that we must push on as fast as we could, for though we had gold we had little enough to buy food with after this last depletion of our stores; and they, thoroughly agreeing with me, went to work to climb the mountains in front of us. It was stiff work indeed, and the heavy masses of gold had to be hauled up from ledge to ledge as we followed what seemed like a goat-track, which was the only indication of a path across them. Forgetful of our guide's warnings, we slept the first night without any protection against the wild beasts; we had been so tired that we threw ourselves down to sleep without even providing enough fuel to keep our fires burning all the night, and towards early morning I was awoke by the sound of roaring close at hand. The noise had also roused all my companions, and we were soon huddling together in fear, for there could be no mistaking those deep and dread tones—a lion was in the forest and close to us. Not a spark remained of our fires, and though I had my flint and tinder-box, all were too frightened to go in search of leaves and dry twigs to make

Again and again did we hear the roar of the li•n as he drew closer and closer, and suddenly, with one consent we all commenced to clamber into the neighbouring trees, leaving guns, clothes, and loads abandoned on the ground

loads abandoned on the ground.

The lion was evidently not thinking of us, but challenging a rival, for we soon heard answering roars in the opposite direction, also drawing nearer and nearer. I had not left my flint and steel behind me when I got up into the tree, and I found that the one into which I had clambered was covered with dry moss, and a portion of it was dead, so I soon managed to make a little fire in a fork of the branches. Meanwhile the two lions drew nearer and nearer, and at last we could hear a final roar and rush, and then the sound of growling and struggling. My fire soon began to burn up, and I had to change to another tree whence I could watch the battle that was going on almost beneath us. One lion was a large one of deep yellow eolour, while

his antagonist was smaller and of a dark brown. They struggled together regardless of the light of the burning tree, and tore and bit savagely. As the light from the tree increased I was astonished to see a lioness sitting quietly on her haunches looking on at the struggle and quietly licking her chaps as if she fully appreciated it. After a time the two com-batants separated, and lay regarding each other, and each watching for the chance of a successful spring against his opponent. Their whole being seemed to be concentrated in the fierce looks with which they regarded each other, while their long tails kept nervously switching their bleeding sides. At last the yellow lion made a dash forward, evidently urged on by the lioness, who did not seem to appreciate the period of inaction, but the brown was too sharp for him, and, evading his spring, turned and fixed himself on the nape of his neck with his teeth and fore-claws. The yellow lion rolled over and over in the vain endea-your to free himself from his assailant, but Brownie held on, and though receiving many wounds and rips, managed to get his hind feet also firmly fixed in the back of his foe. Now began a most extraordinary display of muscular power, and the brown lion seemed to try to draw the head and loins of the yellow one together so as to break his back, whilst the yellow one, notwithstanding the intense agony he must have been suffering, endeavoured to bend himself in the opposite direction. The brown lion having the advantage of position, his antagonist began to wax weaker and weaker, and after a time the claws and teeth of the brown lion drawing from their hold, the yellow one had no heart to resume the contest, and made his retreat into the jungle, while the lioness came to pur over and lick the wounds of the conqueror.

I was afraid that they might stay there all day, when a limb of the burning tree fell down, and, pitching on one of our kegs of powder, burst it open and ignited it. Fortunately the other kegs were not touched by it, but all our belongings were scorched and scattered by the explosion, while the lion and lioness took it as a

decided notice to quit. Descending from our uncomfortable perches in the trees, we began to examine what damage had been done by the explosion, and found, besides the keg of powder that had blown up, all our remaining sacks of beads were ripped open and their contents spilt, and some of our cloth was burnt. We soon put out the fire, and then began to search for the beads with even more energy than we had shown a few days. before in hunting for gold, and were for-tunate enough to gather a considerable portion of them together again, and by noon were able to resume our ascent of the mountains. For four hours more we toiled up their steep ascent, and then, reaching the summit, we saw stretched before us another prairie country such as we had crossed since leaving Lohemba, but diversified by numerous villages embowered in groves of bananas and palms. and we hoped that when we arrived among them we might find a peaceful welcome.

That night we camped on the summit of the range, and early the next morning began the descent. On arriving at the bottom we met a party of hunters, provided with nets and spears, who were returning from an expedition in search of game, loaded with their spoi, and as we were longing for meat I bought somewith beads. This commencement of intercourse soon ripened into friendly feelings, and the leader of the party said that we must halt at his village for the night, and that when rested he would send men with us to show us the best roads. His offer was thankfully accepted, and we followed him into a large village, surrounded by a grove of bananas, for, as he said, there were no enemies near, so there was no need of a stockade or ditch, as he had heard was the case in many countries. Here seemed to be the first really peaceful country that I had seen since leaving Bihé, and I lay down to sleep more at rest in my mind than I had been for many a long day. But this peaceful state was not to continue, for in the morning men came in saying that men, coming from where they knew not, were burning and destroying villages, and, catching sight of the guns of our party, said they had things like them, out of which fire came, and which killed men a long way off. I was afraid that perhaps we might be supposed to have something to do with these raiders, but was delighted to find that the news made no difference in the friendly relations between the natives and ourselves.

The chief came to me and said that he intended with all his people to retreat to a place called Mkanna, where he said the people lived under the river, and where we should be safe from all attacks, and if I liked to accompany him I should be welcome. I willingly accepted his offer, and told him that as the people they were fleeing from were armed with guns, if he would provide for the carriage of my gold and other goods, I would do my best to protect our rear from pursuit, and this

Fear lent wings to our feet, and we marched far and fast, the women bearing with them all their household gear and the men driving their goats and sheep, whilst the hunters and the warriors, with my men, remained behind to resist the enemy.

he at once agreed to.

Two days we struggled along, and on the third we were told we should arrive at Mkanna and be in safety. The next morning, however, soon after we were starting, we heard the shouts of men behind, and soon a party of about a hundred, among whom were ten with muskets, came up by the path I was following, and, firing their muskets, expected to see us instantly throw down everything and surrender. Their astonishment on, instead, receiving a steady, well-directed volley from us was intense, and they turned and fled, leaving their wounded behind. I sent to try and find out who these savage strangers might be, and as far as I could understand they were men who had come from a country many moons to the eastward, where white men wearing long robes constantly came, and that from them they had obtained mus-kets, and were now hunting for slaves and ivory for these white men.

I could not then understand who or

what these white men could be, but now know that they must have been Arabs from Zanzibar, and hurried on after the rest of the fugitives. At noon I saw before us some rocky hills, through which a river, which I was told was the Lufira, burst, and here I was told was Mkanna, and the people lived under the river. All the women and children, and the men with goats, had disappeared when I arrived, and I was told they had gone under the river. What could it mean? Was there some national custom of committing suicide in the Lufira, or what? Soon the mystery was explained, for behind a large rock there appeared the entrance into a cave, and here we were invited to enter, and as soon as we were inside some men, who knew another and more secret entrance, piled rocks above the mouth of the cave. We could soon after this hear the shouts of our pursuers, who had again mustered up courage to come after us, and through holes in the rocks we managed to pick off a few of them, which, as the remainder could not understand where the fire came from,

utterly demoralised them, and they fled again in confusion.

Our guides now lighted torches, and we were conducted through a series of caves, which branched in all directions under the hills, and where were assembled many fugitives and all their belongings, and, being brought to the chief of the people to whom the caves belonged, he told me there was another exit on the eastern side of the Lufira, and that I could from there, he had no doubt, easily make my way to the country of the Kazembe.

I wandered about these caves in marvel and astonishment, for though they actually passed under the river they were dry and comfortable, and whole villages of huts had been constructed in some of the larger ones, and there were fowls running about, crowing and clucking, who have never really seen daylight. The light, of course, was bad, being only given by fires and torches, whose smoke hid all the upper part of the caves, and, with a few of the elders, I found a sort of stone lamp, holding oil, with a rude wick of unspun cotton.

We passed the night in this subterranean dwelling without any inconvenience, and then in the morning, finding our whilomhosts did not consider our presence necessary any longer, as they did not think their pursuers would venture into the caves, we bade them farewell, and again emerging into the upper world, after a subterranean journey of seven miles, more or less, we set our faces towards the town of the Kazembe.

(To be continued.)

TO THE TOP OF MONT BLANC:

OR, HOW TWO BOYS DID IT.

BY THE REV. WALTER SENIOR, M.A.

VIII, -PREPARING TO MOUNT.

T is Saturday now," said their friend, smiling, "and as an old stager let me advise you to content yourself after your heavy walk of yesterday with simply doing the Flegére to-day. It is two hours up and one down, and you can stay there an hour and telescope and you can stay there an hour and telescope the Mer de Glace and Montanvert, which it faces, across the valley. Indeed, if you like, I will go with you, and as I know it well, I can bring you back along the mountain side to Plan Praz, which is up there over us, on the side of the Brevent, and the path down to Champani is there vigoragia, along the Chamouni is there, zigzagging along the front of it."

The boys both protested heartily that it would be a real pleasure to them if he would go, and they would be greatly obliged to him. And they meant it, for indeed he was so kind and genial, and had such a sympathetic smile,

and yet such a knowing air, that he had charmed their hearts.

"Thank you," he answered. "Let me introduce myself then. My name is Greystone"

stone."
"My father has a friend of your name,"

said Harry.
And very soon they were off together in the most friendly fashion, talking as they

"There is one reason," said Mr. Greystone, "I ought to mention, for which I specially advise this walk to day. It is because I want to move a temptation out of the way of tomorrow. Don't forget your Sundays, boys, when every from home, as so many do. We when away from home, as so many do.

English are doing so sadly too much, I am sorry to say. There is the little English sorry to say. There is the little English church (and he pointed over the way), and there I advise you to go both morning and afternoon and really rest. It is good for the body as well as the soul, I assure you, though I grant that it is a great trial on a sunny grant that it is a great trial on a sunny Sunday to forego some long expedition. But let me tell you this, boys, that a sacrifice of pleasure to principle makes the strong

The two lads looked at the pleasant church as it stood facing them on the right with its back to the steep forests of the Aiguille de Blagnieres, down which rolled a silvery waterfall, and far above was its needle peak pierc-

Then they quietly said, "We never thought of any expedition for to-morrow, sir! and we are both very glad to find an English church here; but is there an English clergy-

man too?"
"Yes. You will find his name on the notices which are in the hetel, with the times of service. And I should have said, if you had not taken me as your friend, that in any difficulty the Chaplain, as he is called, is always ready with help and advice, and that

you could not do better than consult him."

"I think," said Bob, "we English ought to be proud of such a fact as an English church at Chamouni."

"I quite agree with you," Mr. Greystone answered. "It is a very significant fact. Pray God we may never turn our backs on it, or trifle away the faith in which it had its origin.
"But now to change the subject; did-I

understand aright that you are serious in your determination to attempt Mont Blanc?" This question sorely taxed the modesty of the two friends.

"Well," said Bob, "we don't wish either to be cocky or foolhardy; but we should like to try. Do you think it is impossible for

us?"
"That's a serious question which I scarcely
"That's a serious question which I scarcely dare answer off-hand, and, indeed, cannot until I have seen your paces. It all depends. There are some persons who ought not to attempt such a thing. If you are in the least bit dizzy-headed or infirm of footing you ought not to think of it. It would be foolbardy. But I shall be better able to indee when we have been terrethere. judge when we have been together a little on the ice. I have been up Mont Blanc once, and there is not much rock-work. The diffi-culties are those of snow and ice. I, too, am thinking of making the ascent. Perhaps we

ean go together." Bob and Harry exchanged glances of joy. Never were such lucky fellows! They were sure and certain instantaneously that their paces would prove satisfactory, and they resolved to be entirely obedient to Mr. Greystone's slightest wish, and to act with the greatest prudence, in order to prove that they were quite trustworthy.

I must refrain, however, from further particulars of this expedition to Le Flegére and

It would take too much time Plan Praz. to tell of all the enjoyment of the wooded ascent, and of the splendid view they got through the telescope of the Mer de Glace, and its two tributary rivers of ice, and of its mighty aignilles or needle peaks or us mighty aignilles or needle peaks, or of the magnificent panorama of Mont Blanc which they had all the way as they turned to walk to Plan Praz, a walk of about an hour and a half, at a height of six thousand feet along the side of the Brevent.

But it was all splendid, and Sunday, too, was most peaceful and enjoyable, though the sun did shine beautifully, and tempters said it

was too brilliant to last.

"Breakfast at six to-morrow, remember," said Mr Greystone. "We must do the Manvais Pas, and have a good day on the Mer de Glace. You won't require a guide for that, as I have one whom I have engaged to be with me all the time I am here.

The boys could scarcely sleep for excitement. What a holiday they were having! What a story they would have to tell! "I do believe we shall do it, Bob," said Harry. "So do f," said Bob. "Go to sleep!" He felt as if he could have shouted so that all Chamouni would hear, and so he said, "Go

to sleep!

But that was easier said than done. All grew quiet. The tinkling bells of horses and carriages had all long since ceased, and even human voices had died out of the square below and the streets which ran from it. But at Chamouni, when man makes exit from the stage then enter the cats. First dim distant calls arise. Then uearer cries, which sadly irritate the would-be sleepers. They turn themselves round in bed and try to escape with head under the sheets. It is of no use. Some half dozen of the feline tribe-("fee-line" said Bob--"the most unfeelin' critturs going") were ensconced just beneath their window, holding a scandal meeting; followed by a scolding match.

Yadan-owww! It was unbearable. it grew steadily worse as they grew sleepier. The church clock banged out midnight in

The clitter clock banged out manight in slow solemn strokes.

"We shall never be up in time in the morning. Oh that Tom! Just hark to that awful row! I can't stand it any longer."

Saying this, Bob jumped out of bed, and seizing on his jug of water rushed to the open

window. There he fired as it were full at the feline game below. The effect was enormous. The old. Tom whose wrath had been waxing fiercer and fiercer, was enraged beyond all bounds by the unexpected assault. thickened, his body swelled, and the yell that he gave was astounding. As he jumped he seemed a dynamite cat going off in a thousand directions. Mont Blanc must have turned pale as it heard the terrific explosion. the sudden silence which ensued was almost To Bob's horror a voice as of a drowning man came faintly from below.
"Stranger, up there!" it said with unmis-

takable. American intonation. "Stranger up there! Can you throw a towel after your water. It isn't time for a bath yet, and I guess you didn't calculate that I was studying that Tom?"

Bob very sheepishly put down his empty jng, and crept with the utmost silence into bed. "Oh, Bob, what have you done?

"Shot at a pigeon and killed a black crow," answered Bob, almost shaken to pieces with

the convulsions of suppressed laughter.

Next day was cloudy, but the clouds were high, and so they ventured to carry out their programme. In spite of their restless night, they completely satisfied Mr. Greystone, as he watched them going down the Mauvais Pas, and afterwards as he took them on to the rougher part of the Mer de Glace. Evidently they had both steady heads and active dently they had roth steady heads and active legs. They could stand on ledges, they could look down great heights without being giddy, they could jump crevasses, and they could hold out in strength. Still he kept his opinion to himself, and contented them with

talking about the difficulties of the ascent of Mont Blane, and the absolute necessity of training thoroughly first, before attempting it. He encouraged them to hope, but only so as to inspire them with effort.

Next day was rainy, and so was the morning after, but in the afternoon he took them for a little glacier practice on the lower part of the Glacier des Bossons.

On their return he brought them to a chalet now uninhabited but with an inscription on it in French. "Read that," he said, and they read that it was the cottage of Jaques Balmat, who, in 1786, first scaled Mont Blanc, discovering the route which travellers now take to the summit, and that he guided M.

Saussure on his famous ascent.

There as they gazed all up Mont Blanc, as it were from his foot to his crown, getting glimpses through the clouds, Mr. Greystone tall the story of Baluat's discovery of the told the story of Balmat's discovery of the route, how he followed after Saussure's first expedition (which failed), and how he was overtaken when nearly 12,000 feet high by a snowstorm and had to remain where all night alone; and how, in spite of frost-bitten feet, he next day turned his night's catastrophe to such good account that he made himself sure of the route to the summit, which had as yet baffled all attempts; how painfully he dragged himself down again to Chamouni, and then in gratitude for Dr. Paccard's attention during his illness told him of his discovery, and how he and Dr. Paccard soon after made the first ascent, and then in a year or two how he led de Saussure to the mighty summit. "But," continued Mr. Greystone, "he came to a sad end. Saussure, who was a great geologist, as you no doubt know, took away with him twelve mule loads of rock to Geneva, believing he had found traces of gold. Unfortunately for Balmat, he believed that this was rich treasure, and he became restless with visions of wealth, and ever after he made lonely expeditions all about Mont Blanc in search of gold. One day his hat, I think, or his handkerchief, was found at the edge of a deep crevasse, and nothing more was ever heard of him.

"Boys," said Mr. Greystone, "at the end of this glacier expedition, we shall try our luck together on Mont Blanc as soon as the weather is thoroughly settled. You will do."

CHAPTER IX. -AT LAST THE START.

Who has not waited for some crowning day of hope? With what eager delight do expectant eyes open on it! Roused at five, the first question of our two young friends was, "Is it fine?" Yes, it was fine, and the glass was rising full of promise, as befitted that supreme morning of the great attempt.

At six o'clock the courtyard of the hotel was a busy scene of all kinds of preparation. The guides were waiting in readiness with ropes and ice-axes and chamois knapsacks. The porteurs were trying their respective loads, and arranging them in most convenient forms; the servants were coming and going on all sorts of errands. The voyageurs were engaged in remembering all that they would want for their mountain needs which the

porteurs must take.

But constantly and instinctively the eyes of one and another wandered from the busy scene to gaze on the majesty of Mont Blanc, and perhaps to wonder what might befall. There he stood, clear of all cloud, the rosy light scarce faded away from his head; and there, half-way down, were the rocks ealled "Les Grand Mulets," where they would "Les Grand Mulets," where they would bodge at night before making the final effort for the summit; and there was the long white glacier flowing down below those rocks like Father Mont Blane's vast beard, and this had to be crossed in spite of all crevasses.
Was all right? Yes, everything at last was

right. There were two ladies, who were going part of the way for a day's excursion, and they were on mules. There were four

travellers, each with their guides and porteurs, besides Mr. Greystone and our two young adventurers, with their guides and porteurs-a caravan of twenty-two in all. Great was the éclât as they defiled through the principal thoroughtare of Chamouni. In about a quarter of an hour they reached the village of Pellerins, at the foot of the ascent. There the boys began to take the lead up the winding path, stopping every now and theu to breathe and watch the slow-ascending cavalcade below. They wind through woods, they cross a few glades, they meet with torrents, they gaze over the valley at the Brevent, they look up Mont Blanc, at the Alguille du Midi, and at length reach, in about au hour, the cascade Du Dard or Pellerius.

It is a noble waterfall, and the boys went down the rocky hollow into which it falls to fully enjoy it. There they had ceaseless thunder and dripping spray to their hearts' content. Ever moving, yet always remaining the same, a cataract seems like a thing of eternity.

After this the ascent became more steep and rugged, but at the same time more interesting. It went in zigzags, with different views at each corner of the zigzag. turn on the right there were most picturesque views of the glacier and its ravine, and views of the glacter and its ravine, and auther turn on the left there were splendid peeps through pine-forests of the mountain, the torrent, and the vast rocks and needle-peaks far up in the blue sky.

To our two young friends it was all beautiful. The morning air seemed volatile, the pians bits of paradise, and every now and

views bits of paradise, and every now and then when the dome of Mont Blanc came into sight they stood and gazed a moment with indescribable feeling.

At the end of the second hour all the caravan, except the ladies' party, had reached Pierre Pointue, which is a huge knob on the side of the Aiguille du Midi. Here a small restaurant has been recently erected several hundred feet above the forest-line, commanding a splendid view of all below and around.

It took another full hour before the party eould get under way after the rest which was taken here. Most had breakfast, some had wine, some a smoke. The ladies had to dress in mountain costume, not having dared to face the criticism of the fashionable world below. When they at last emerged from their toilet-rooms, with conscious faces, they were complimented upon their appearance. Immense wideawake hats, big with veils, defied the sun in all his strength, and short skirts and grey leggings prepared for trea-cherous snows and the conquest of erevasses. No mules can go where they are going now.

Then once more all proved ready, and another start was made. This time every one felt the quickening of heart which comes from the sense of difficulty and dauger drawing

nearer,

For now, because the ridge along which the ascent had so far lain began to rise steeply towards the Aiguille du Midi, the route had to betake itself to the side of the ridge, in order to gain access higher up on to the glacier, and this side was steep and rocky. Each onc, therefore, must be careful of his steps, and cling close to the rock, for in places the side of the ridge was all but perpendicular, and there was only a goat's path running along it about a foot wide. On the left was a rocky wall, on the right a dizzy precipice a rocky waif, off the light a dizzy precipited overlianging the verge of the glacier. Down below all was rocky confusion, dirty blocks of ice, and clayey torrent. To look down is dangerous; a slip seems certain destruction. Here the guides are full of watchful care. "Look not down," they cry; but at the rock. Some one slips, but a vice-like grip arrests.

the mischance, and only the loose stones go pattering into the abyss. Great is the relief when the ravine beyond this precipice is reached. Then after another half-hour's scramble over loose boulders, they stand at length at the top of the ravine beneath the shadow of the great rock of Pierre de l'Echelle, more than four thousand feet above Cha-

mouni.

Here they took a moment's breathing time and gazed on the view. Above were huge cornices of ice and snow overhanging frightfully, but yet comparatively safe in the frosty air of the morning. In the afternoon, how-eyer, this rock must be avoided as decidedly dangerous, when the power of the sun is on those cornices. They break off in huge masses and sweep down the ravine with thunderous rour.

Looking downwards, the torrent's path, white and worn, seemed to grow narrower, and at length dwindle into thin grey lines amongst the forests and along the valley. Then the eye sought out the opposite mountains, and found that the peak of the Brevent, which looks so high and pointed from Chamouni, seemed almost lost in the multi-

Looking across the ice plain on the left (still half an hour distant, but seeming close enough to step on to almost), the pinnacles and crags of the two glaciers, Bossons and Tacconay, which here have a common origin, spread level with the eye.

"It cannot be very dangerous, Mr. Greystone" soid Rob.

"T cannot be very dangerous, Mr. Greystone," said Bob.
"Don't judge by appearances," was the reply; "it is never wise. Wait a while, and you will find that the worst bit of work we shall have to do will be found amongst that broken ice underneath the rocks of the Grands Mulets.

Once more they move on to reach the glacier's grimy forbidding edge, and in half an hour they step on to a world of snow and ice. And now single file becomes the mode of progress, following closely in the steps of the leading guide as he picks his way amidst cliffs, and hillocks, and billowy fields of dazzling whiteness, whilst the sun blazes overhead in an almost purple sky.

"Halt! halt!" Put on veils and blue glasses to avoid the blinding glare, or the eyes

will soon be bloodshot, not to say snow blind.

Advance!

Progress takes more and more a zigzag form to circumvent here, and avoid there, the yawning months of dangerous crevasses, or some small mountains of ice; and all the time they are going steadily up in an oblique direc-tion towards the Grands Mulets.

At last, at a more even part, the guides stop, and say, "We must rope, messieurs: we come to the bad places now."

There the ladies decided that they must return to Pierre Pointue; and some of the party began to feel a little quaky.
"Open a bottle of wine!" said Mr. Greystone to a porteur. To rope seems in the eyes

of the inexperienced a desperate and foolish idea. If one is lost all will be lost, they think. But the guides know what they are about, and tell you that if one slips all the rest will save him. And so the rope was firmly looped round each one's waist, a distance of eight feet being allowed between each person.

"This is glorious!" said Bob.

"I do wish father was here!" said Harry:

at which Mr. Greystone smiled a smile of comicial approval as if he liked Harry's wish very much for some reason or other.

Onwards to the broken glacier! The crevasses grow more frequent and gape in all directions, because the glacier is now steep and broken, being convulsed with underlying Every now and then it presented wonderful seenes of ice. As well as yawning gulfs there were great pinnacles and vast towers. Some ice formations looked like spires, and some like towers of churches, and some like battlemented castles, and there were all sorts of bridges, and the colours which gleamed were all the colours of the rainbow

But here beauty is synonymous with danger. The way began to run along ledges dividing two crevasses, sometimes wider, sometimes narrower, but also constantly intersected by narrower, but also constantly intersected by cross clefts. Along the wide parts they moved rapidly, but the pace grew "slow and sure" in the narrower places. There at times the whole party remained motionless, and only one at a time made move, every other one watching his own portion of the rope so as to be ready to held head if there should be as to be ready to hold hard if there should be a slip.

It was beautiful to see how sure-footed and daring the guides were, and Bob and Harry thought that Mr. Greystone was quite as good as any of them. He was between them, and he had arranged a guide before Harry and one behind Bob. Thus he had them perfectly under his watch and control. This gave them such confidence, and it inspired them so, that they did wonderfully well. They were quite free from dizziness, and, indeed, the farther they went the less fear they felt.

There were places which had to be jumped, and places where they had to go over by snow pridges, and places where they had to place a ladder across the chasm in order to crawl

over it. The guides would jump where it seemed impossible to get a foothold on the sloping edge of some deep crevasse, and there they would stand and lean over even to stretch a helping hand. But there would be another guide beyond who would be pulling another guide beyond who would be pulling tight the friendly rope which held up the daring helper. Once Harry slipped, after a jump, but in an instant he was dangling safely, though ignominiously, by the middle, like a herring on a skewer, Bob said, and then landed safely over.

One place they came to was very difficult. It was a small valley of ice frightfully deep, and it had to be crossed on a narrow ridge of snow which jutted into it. This ridge of snow seemed to end at a wall of ice on the far side of the valley, but in reality, when the guide came to look, it stopped short of the ice wall and there was a horrible chasm between.

"The ladder!" cried the guide, and a second cried wall is very to the great with

second guide made his way to the spot with the ladder on his shoulder. Then the two reared it up across the gulf, its foot on the snow ridge its head against the ice wall. Confusion! it was six or seven feet short of reaching to the top. What was to be done? The guides looked at each other for a moment and then the younger went at the difficulty like a cat, whilst all held their breath, and every heart grew anxious. That extra seven feet was indeed dangerous, and to fall there would imperil the whole party over such an abyss. It was marvellous how he succeeded. From the top of the ladder he assailed the ice wall with his axe, making hand-hold and foot-hold until he reached the top in safety. Then followed the other guide, and a third one came to guard the ladder, whilst first Hurry, and then Bob, and then Mr. Greystone, then the fourth man of the party, and then the

guides and the porteurs in turn ascended.

This was the last great feat before reaching the Grand Mulets rocks. The remaining portion was only a heavy grind through deeply-melted snow on very steep slopes. It was now past noon, and the sun's rays had been playing on the slopes for hours, and our travellers sank a foot deep at almost every step, and began to feel the fatigue of it, and to long for the rest those black rocks—so slight-looking at Chamouni, so towering now, as they gazed up to them from the slopes up which they

slowly toiled-would soon afford.

At length the last piece of snow was reached, and they stepped on to the platform of the chalet.

LAWN-TENNIS OF THE PRESENT.

By E. T. Sachs.

PART II.

THE BACK-HAND STROKE

is what always proves a great stumbling block to beginners, and even amongst the better class of players the possession of a good "back-hand" is sufficiently noteworthy to be the subject of comment. The fore-hand stroke comes naturally to the majority, whilst the back-hand stroke smacks of artificialness. The necessity of the back-hand stroke would not exist if we were all trained from childhood, as some maintain we should be trained, to use either hand with equal facility. In the case of true ambi-dexterous players (I know of only two such) there is no back-hand necessary, the racket being changed from hand to hand as the ball comes to the right or the left. Such players make their stroke from either side in what is to them a natural way. But there is no reason whatever why the back-hand stroke should be difficult of execution. Beginners make it difficult by estation. Beginners make it difficult by setting about it in the wrong way. The easiest way to learn is to watch a master of the art closely, and follow his actions on the spot. It this be done the learner will find that the

reason the ordinary player fails to make a good back-hand stroke is because he does not present the body properly to the ball. In the case of the fore-hand stroke (see Fig. 1) the left leg is in front, but in the case of the back-hand stroke the reverse is the case, the

right leg being in front. (See Fig. 4)

Here is the whole secret. The ordinary player, failing to realise that the body must be turned quite at right angles to the line of flight of the ball, is always at a disadvantage. Sometimes he does not turn his body at all, but tries to "scoop" the ball up; this being a manœuvre which, even when attended with success in the shape of returning the ball over the net, invariably presents an easy stroke to the opponent. As in the case of the fore-hand stroke, a full swing must be given to the value of the stroke the weak of the stroke the fore-hand stroke, a full swing must be given to the racket, and this cannot possibly be done unless the body be turned with the right side facing the ball as it advances. The body comes in the way of the racket under every other condition. If the reader looks at Figs. 3 and 4 he will see that the hand in selving the back lead every table is turned every making the back-hand stroke is turned over, the back of the hand being presented to

the ball. Some there are (notably H. F-Lawford) who do not turn the hand round in making the back-hand stroke, but use the same side of the racket as that employed for the fore-hand return. This is completely wrong, and Lawford's success does not prove to the contrary, for he cannot possibly reach many balls placed far to his back-hand, which consequently score. Using the back-hand properly, it is possible to reach as far on that side as on the other, and with some force also. It is a fact that with the vast majority of players the back-hand, even when skilfully executed, is much weaker than the fore-hand, but there is no reason why both should not be equally severe. The reason of the weakness is that it is generally considered sufficient to get the ball back, no attempt being made to put force into the stroke. But if the body be properly turned the racket can be held far back preparatory to the stroke, and brought forward with considerable energy. It is only necessary for the learner to try the effect of the different positions, racket in hand, and without any ball, for him to speedily con-vince himself which affords him the greatest

freedom of action, and what goes with that,

the greatest power of stroke.

I have said that it is possible to reach as far on the back-hand as on the fore-hand side. To get the full reach of the arm it is necessary to present the back to the ball just before taking the stroke. The greatest reach on the fore-hand is got with the body square



Fig. 4.-The Back-hand Stroke.

to the net, facing it, consequently the greatest reach on the back-hand is got with the back square to the net. The back is turned only square to the net. The back is turned only at the instant the stroke is taken, otherwise it would not be possible to get a proper sight of the ball, and simultaneously the wrist is thrown back so as to bring the face of the racket square to the ball, which is taken after it has actually passed the body. The wrist must play very loosely for this stroke. As the stroke generally occurs from the fact of the ball being placed well on the back-hand line the ordinary result of its successful ac-complishment is that the ball travels back along the same line, and, more often than not, wins the stroke. This return the learner not, wins the stroke. This return the learner may easily practise by himself, bouncing the ball upon the ground for the purpose.

A difficult stroke is presented when the ball comes direct towards the left half of the body about waist high. To return this a back-handed cut must be made across the body, which is of course turned as directed above. It is a favourite stroke with good players to place a ball coming in this fashion down the opponent's fore-hand line, by means of the cut; indeed, it is easier to place it

there than anywhere else.

THE VOLLEY,

although regarded as on offensive stroke, is quite as often a defensive one. But the proper light in which to view the volley, is in that of a return wherewith to finish the stroke. A player is supposed never to go up to the net unless he sees a good chance of winning the stroke by volleying the next return. Thus when, by a hard drive, the ball is placed well to the opponent's fore- or back-hand, it is reasonable to assume that his return will be a weak one, which means that the ball will probably be returned high in the air some-where near the net. When this proves to be the case it is decidedly the game to run up and volley the ball into that portion of the court where the opponent is not. The volley can be made all round the circle, from the high over-head "smash" to the low underhand volley near the ground, fore- and back-handed. When it is a case of winning a stroke as just supposed, the over-hand stroke will be employed. Except in rare cases of delicate

skill the under-hand volley is more defensive than offensive. It is bad play to run up into the volleying position (just inside the serviceline) merely for the sake of entering upon a volleying duel. The opponent, if he be wise and has an easy return, will toss the ball over one's head, which necessitates a hurried stampede to the base-line and a consequent uncertainty of return. But, even when an opponent is in a difficulty he may return the ball unexpectedly well and close over the net. The man in position will then be obliged to volley in order to save the stroke. Volleying is so much a natter of practice that it is difficult to give any precise directions. When volleying low a little "lift" should be put into the stroke, whereby a slight over-curl is imparted to the ball, which should be kept as close to the net-cord as possible.

One great advantage gained by returning the ball on the volley is that it goes back again so much quicker than would be the case if the player waited for it to come off the ground. Therefore one is more able, by its means, to catch the opponent out of posi-tion, to which he has not had time to return. But the volleyer, on his part, has much less time for consideration, both as to taking the ball and as to where he will put it. Con-sequently great quickness of thought and

In the case of the over-hand volley, for deciding the stroke more time is usually available for the player to think what he is about. When he has an easy over-hand volley let him not be too eager to bring off a "smash." A "smash" is properly a stroke made with such force that the ball bounds to such a height and distance as to be out of reach of the opponent, although, as is often the case, it may 'ound over his head. It is, at all times, none too easy of accomplishment, and the young player will do far better if he contents himself with returning the ball at a fair pace but in a good position—i.e., a bad position for the opponent. Let him do his best to put the ball near the base-line, as then there is not much chance of the opponent reaching it. Length is here again of the greatest importance, for a half-hearted stroke into the middle of the court presents the easiest of returns. Should the opponent be standing beyond the base-line, then try and



Fig. 5 .- The Half-Volley.

place the ball across the court. In the ease of a ball which bounds very high indeed close to the net the easiest of returns is afforded, and the player can "smash" this down at a

very acute angle across the court.

The "stop" volley is a most useful stroke.
The player, to make it, should be standing reasonably near the net, and the ball is struck with a very loosely-held racket, the effect being what is called "killing the ball," which falls without any "go" in it and scarcely The loose racket is the secret of this stroke, which is easiest when the ball comes at a brisk pace.

It is an excellent and much-adopted plan to hold the racket in the two hands just pre-



Fig. 6.-The Half-Volley (back-hand).

vious to making a back-handed volley. Engers of the left-hand lightly hold the frame of the racket for the sole purpose of ensuring that the face meets the ball dead square, which is an indispensable necessity if the ball is to rebound truly. The least deviation causes the ball to go to one side or the other, and this fact is turned to great advantage by and this fact is turned to great advantage by skilful players, who place the ball merely by turning the wrist slightly in the desired direction. Also by striking the ball more on the right or the left side it may be made to deviate from a straight course and so defeat the adversary. Given a ball coming at shoulder adversary. Given a ball coming at shoulder height, over the left shoulder. The adversary, seeing your racket raised back-handed to strike, anticipates a direct return. But you do that which he eannot possibly anticipate from your action—viz, strike the ball, not full, but half-face, on the (your) left side, thus causing it to fly off at a tangent to the (your) right.

With these remarks I will leave the reader to contemplate the portraits of W. Renshaw in various positions. Mr. Renshaw kindly stood for these portraits at my request to Messrs. Waite and Pettitt, photographers, of Cheltenham, and the observer may be sure that the attitudes cannot possibly be im-proved upon, the results quite exceeding all anticipations. They may be used as models

for all time.

A few words of parting advice will be of use if the learner will only take them to heart.

Never play on a bad court if you can get a

good one. Gravel and asphalte (in winter) or similar prepared courts are far better than grass, which can never be quite true.

Use a plain racket with a moderate-sized head, strung with medium-sized gut as tightly

as it is possible to get it.

Keep your racket in a press and in a dry

place. Play with the best balls only. They are the cheapest; and a good game is possible

with them only. Never hurry to pick up a ball, or to serve. By doing both things slowly you have time to think out what you will do next.

When you mean going for a distant ball take long bounds and not short strides.

GREAT MINING DISASTERS.

I.—TYNEWYDD PIT.



Porty years ago the Rhondda Valley was one of the loveliest spots in South Wales. The riches that lay below were undreamt of. The face of nature was unscarred. And where the engines and waste heaps now crowd the the engines and waste heaps now crowd the view was a pleasant rocky dale with the shelves covered with trees and the river rippling cheerily below. The change was due to a triamph of science. Dr. Conybeare, on a holiday trip, went geologising about the valley, and announced that coal was there in quantity. First the upper beds were worked, then the lower ones, and in 1855 the first train of steam coals left the Rhondda for Cardiff. Now there is no busier or blacker coal district in the world.

cardiff. Now there is no busier or blacker coal district in the world.

On Wednesday evening, 11th of April, 1877, just as the men were coming up from the Tynewydd Pit, near Pontypridd, there was a rush below as of the roaring of the sea. Close by was the Old Cymmer Pit of evil repute, and from it the west had bust into them. workings. Of the hundred and fifty men employed underground in the colliery, all answered to their names at the roll-call except fourteen.

An exploring party descended the shaft, which was ninety-two yards deep, and found that all the workings which sloped down from it were full to the crown. The water had come in on all sides and choked all the head-ings and stells ings and stalls.
While the explorers were consulting as to

what was best to be done, faint knockings were heard. Some one then was alive in the pit! The knockings were replied to, and again the faint sounds were given, coming from behind a wall of coal, perhaps thirty feet thick.

At the roar of the incoming stream some of the men had made for the shaft, and meeting the water had run back and up a wind-way. Fortunately they had kept their light, and as they ran upwards from the roadway they saw the water rush past and gradually rise up the slope after them. Higher and higher it came, till the mouth of the windway had disappeared, and it seemed as though hope had gone. The men put down the lamp—there were five of them, father, two brothers, and two friends—and crouching round it, shook hands with each other and said good-bye. Then, together, they sang a Welsh hymn, of which the following translation has been given: tion has been given :-

> " 'Mid the deep and mighty waters There is none can hold my head, Save my dearly-loved Redeemer-He who suffered in my stead : He's a Friend in Jordan river, He my head will hold on high; And by looking to my Saviour, I cau sing, e'en when I die.'

As they began the water seemed to hesitate; when they ended the verse the water had stopped. It seemed to them miraculous. What had happened was that the windway was air-tight, and the rising water had imprisoned the air in the slope, compressed it slightly, and been kept back by it.

Escape downwards there was none. The only way out was through the coal, which they at once proceeded to cut. It was the sound of their mandrils that the rescuers had heard, and having made sure of the direction, these set to work on the outside to cut into

the prison.
All night long the work went on, and in All night long the work went on, and in the early morning the parties could hear each other's voices. At last Morgan's mandril broke through. He had been working for life all through that night, and was to die in the moment of victory. For as the hole was made the imprisoned air roared out with a noise as of thunder, and by its terrific force poor Morgan was dashed against the side of the hole and literally smashed to death. His the hole and literally smashed to death. His father and his brothers and friends were saved, after he who had done so much to rescue them had been dragged out a corpse.

This was a terrible adventure. It is but the prelude to the story of the Tynewydd

Eight men and a boy were missing. Where were they? On the afternoon of the second day a faint knocking was heard down in the deep, three hundred yards or more away. Again came the knocking, and it was even-

tually agreed that it must come from men shut up as the others had been, but in the third heading. This third heading was full of water. So was the second heading above it, and so of course were all the passages leading down from the higher to the lower level. Consider the mine as a house in which the water was at the level of the second floor, and the men were in a cellar in the basement; tilt the house ou one side, and you

have the plan of the miue.

The first thing to be done was to pump out the water so as to admit the rescuers to the second heading, from which they could dig down through the coal into the stall where the fugitives were confined in the air-bubble. Pumps were procured—powerful pumps—one of which for days brought up its thirteen thousand gallons. And a message was sent to London for divers to try and bring the men up through the water. On the Sunday the divers Davis and Purvis began work.
They went down into the second heading, which was still full of water, and down the incline from that they went into the third heading, intending to move along it till they came to the stall. But the water was full of drifting timber and rubbish, and they had to give up. They had traversed five hundred feet of the drift, and been within ninety yards of the men, but farther they could

On Monday, five days after the accident, the water was below the level of the second heading, and it was resolved to begin to cut down the incline to the men. To give some idea of the distance they then were from the surface, where crowds of friends and relatives were waiting night and day for news, it should be remembered that the shaft was ninety-two yards deep. Where the rescue party began to dig was 925 yards from the foot of the shaft, or considerably more than half a mile along the underground ways.

The knocking was still heard occasionally, and as the hole was driven downwards the clink of the prisoners' tools could be distinguished. The speed at which the work progressed was tremendous. The men were working in shifts of four, two on their knees holding the other two up, while the falling coal was cleared away behind them. They worked almost like madmen, and the blood streamed out of their bruised hands as, inch by inch, they cut down their way. Hewing by then, they cut down then way. He wand drilling and blasting, the coal was worked into, and at every pause they could hear the faint tappings of the prisoners below as they slowly worked up towards them. The hole slowly worked up towards them. was not a large one—about six feet wide and under a yard high—but it was over seventy yards long. All Monday, Tuesday, Wednesday the work never ceased, except for the rescuers to listen. On the Wednesday a shout was heard, distant and feeble, "The hole is nearly through; cut a little to the

And now another danger was imminent. In order to avoid such a disaster as had happened when the first group were rescued doors had been built up behind the explorers, and into the space between them and the hole air was being pumped. The party were, in fact, working in compressed air. Unfortunately, however, the doors could not be made properly air-tight, and the compression was nothing like what it ought to have been to be of service. Even admitting that the rush could be diverted harmlessly, it had to be taken into consideration that the men had beaten the pumps, and the water was still at a higher level in the mine than they had driven the hole. When communication was opened the water would probably rush up and drown both rescued and rescuers. Addi-tional pumping power had therefore to be obtained, and the work resumed, the pumpers trying to race the hewers and get the water down as fast as the hole was driven.
In the stall were four men, George Jenkins,

David Jenkins, Moses Powell, and John Thomas, and a boy, David Hughes. Like the Morgans, they had tried to escape, and been met by the water, and by running up to the top end of the stall, they had taken refuge in an air-chamber; they were, in fact, in the same position as if in a diving-bell; the water could not get to them owing to the air it had shut in. For food they had three pounds of

candles they found in the stall—that was all.

The lad suffered more than the rest, and was nursed by the men in turns. Sometimes they relieved the tedium of their long imprisonment, and cheered their minds, with singing verses of Welsh hymns, among them the favourite being the fine old strain of David Williams, from which we have already quoted :-

> " When the mighty rolling waters Beat upon my drooping form, Then my faithful Saviour Jesus Holds my head above the storm. He alone through Death's dark river Helps me o'er the rolling tide, Holding faster than a brother, Until safe on Canaan's side.

"Infinite His grace and goodness; 'Oh! resistless power of love, Still unchanged His faithful promise, Until safe in heaven above. This my hope, 'mid rushing waters (Is the word of The Most High), Through my Saviour's great atonement, I shall live, and shall not die.'

They heard the sounds grow louder as the rescuing party got nearer them, and answered when they could, but of course their efforts were very feeble. Even when almost within touch of their friends their lives were only saved by a hairbreadth. One of the picks dislodged a piece of coal, which as it dropped left a small hole in the narrow wall that now shut them off from safety. Instantly the air began to rush through the hole, and the water began to rise. George Jenkins stooped down, and picking up a lump of elay, stuck it in the hole. The water then stopped rising, but what would happen when the wall

was again pierced?

And so the advance was checked for the

pumps to get ahead and take off the pressure. Soon they had passed the depth, and the cutting was resumed. But then another danger developed itself. The gas broke out and filled the hole. It flickered in the safety lamps, and night any moment blow up. Then the men retreated again, and those in the dark hole thought they had deserted the dark hole thought they had deserted them. But there was no cause for despair; volunteers were called for, and the men went back at the peril of their lives. It was the 20th of April, the ninth day after the water broke in. So abundant was the gas that it rose almost a foot above their lamps. was to happen when the air burst out through the hole they were to make none of them knew. The two men in front were Abraham knew. The two men in front were Abraham Dodd and Isaac Pride. It was Pride that knocked the hole in the wall.

Instantly the imprisoned air burst forth and thundered past them like the boom of a

great gun. Crouching to the right and of the long, low, narrow channel down which they had come, the rescuers waited for it to exhaust its strength, but it still roared on, sweeping down everything in its path. Suddenly a shout was heard from the prisoners.

"We are up to the middle in water. "Where's the lad?" asked Pride.

"In my arms.

"You go in, Dodd, the hole is not large enough for me. Dodd was soon scrambling in, saying as he

did so, "Don't be afraid, George, I am coming to

you."

you."

"All right, Dodd," said Jenkius.

"Where are you?" asked Dodd, for it was all dark; there were no lights or lamps.

George Jenkins then came towards him, George Jeukins then came towards him, and caught hold of him, put his arms round his neck, and kissed him. Then Moses Powell did the same.

"Where are the other men?" asked Dodd.

"Behind!

Meanwhile Pride had enlarged the hole and got through. He went behind Powell and found John Thomas sitting apparently life-

"Yes!" and that was all he could say.

Next the boy was found and passed out to Gwillym Thomas.

He asked him it his father and brother were alive, and Thomas told him yes; he thought it better not to tell him the truth at

thought it better not to tell him the truth at the risk of breaking his heart; for the little fellow's father and brother were among the

few that had not been found.

There is no need for us to enlarge on the merit of this rescue. It was oue of the finest things ever done in any land or age. Mr. Wales, under whom it was carried out, and Pride and Dodd and their companions, received the Albert Medal for their share in it. The giving of the medals is forgotten. The deed will never be forgotten. We never hear deed will never be forgotten. We never hear of the Rhondda without thinking of the men who, thanks to their fellow-men, came alive out of their nine days' entombment in the coal.

(To be continued.)

THE AUTHOR OF "ROBINSON CRUSOE."

By D. F. HANNIGAN, A.B., LL.B.

For more than a century and a half that wonderful book, "Robinson Crusee," has delighted and fascinated millions of boys, has delighted and fascinated millions of boys, and yet there is some reason to fear that many of our young friends know little or nothing about the life of its author. It is not unlikely that, but for this marvellous production, the name of Daniel Defoe would have by this time been quite forgotten, for the production of the production we live in an age of change and unrest, and the glories of the past seem to fade before the ambitions and anxieties of the present and

the foreshadowings and possibilities of the

And yet few men have had a stranger or more eventful career than Defoe, who, though he was not, like his celebrated hero, cast upon a desolate island, passed through many vicissitudes, and often ouly escaped death by something like a miracle. He was nearly sixty years of age when he published his greatest work, and before that time had been a rebel, a merchant, a writer of satires in verse, a political pamphleteer, a prisoner, a bankrupt, and the editor of more than one newspaper.

Though it is the custom for biographers to dwell upon the illustrious descent of those whose lives they relate, much cannot be said concerning the antiquity of the family of Defoe. Indeed, the author of "Robinson Crusoe" was literally the first of the name, for his grandfather was Daniel Foe, a yeoman who flourished in Huntingdonshire during the Civil Wars, and his father was a London butcher in tolerably comfortable circumstances, who signed himself plain James Foe. How and when our author first assumed the Norman prefix which altered the family name to Defoe it is not easy to determine; but it has been ascertained by Mr. Lee, who has made the most minute inquiries on the subject, that in his early years Daniel generally wrote his name indiscriminately, sometimes calling himself "D. Foe," sometimes "Daniel Foe," and occasionally "Daniel Defoe." As his father frequently appeared in the pulpit, being a prominent Noncouformist, it was neces sary to distinguish the two, and accordingly while the elder member of the family was referred to as "Mr. Foe," the younger was usually called "Mr. D. Foe." This explanation would seem to show that the chauge of nanc arose partly through carelessness, and partly owing to the prefix being retained for the purpose of convenience. Defoe himself certainly avowed his contempt for the pride of birth in some lines which deserve to be quoted for their rugged manliness:—

"Then let us boast of ancestors no more, Or deeds of heroes done in days of yore, For fame of families is all a cheat; "Tis personal virtue only makes us great."

James Foe appears to have been an excellent father, and we may infer that he prospered in trade from the fact that he was able to give his son the best education then open to Dissenters. The last act recorded of him is his giving a character to a female servant who had lived two years in his service. "I should not," he says, "have recommended her to Mr. Cave, that godly minister, had not her conversation been becoming the Gospel."

The date of Daniel Defoe's birth was 1661, and it is a remarkable fact that there is no entry of his baptism in the register of the Parish of St. Giles, in which he was born. It is supposed that he was baptized by Dr. Annesley, an eminent Nonconformist minister of the period. We are told that young Daniel's mind was of an emineutly religious cast, for at a very early age he had carefully read the entire Bible and committed to memory most of its contents. At the same time he was a youth of rare courage, and was always able to use his fists when necessary. In a number of his newspaper, called "The Review," he thus recalls one of the encounters of his juvenile days: "From a boxing young English boy 1 learned this early piece of generosity, not to strike my enemy when he is down."

In his fourteenth year he was placed in a well-known Dissenter's academy at Stoke Newington, under the care of "that polite and profound scholar," the Rev. Charles Morton, where he had great facilities for learning, and was brought into contact with several youths who afterwards became distinguished. Amongst the number may be mentioned Samnel Wesley and Nathaniel Taylor. This school appears to have been conducted on excellent principles, special attention being directed to the study of English authors and the practice of English composition.

Defoe tells ns in one of his works that it was the eustom for "the master or tutor to read all his lectures in English," and to make the pupils declaim and answer questions in the English tongue. The classical languages were not, however, neglected, and not only did Defoe acquire an extensive knowledge of Latin and Greek, but he learnt to translate Spanish, Italian, and French, and to speak the latter tongue with considerable fluency. He also acquired in Stoke Newington a knowledge of theology, which enabled him to cope with the most eminent controversial writers of that age. His geographical knowledge was of quite an exhaustive character, as may be easily seen by a reference to the celebrated narrative which has made his name im-

Few English writers possessed such a power of repartee as Defoe, though he used it spar-

ingly. Replying at one time to a coarse attack made upon him by Swift in the "Examiner," taunting him with illiteracy, he says, "The language of Billingsgate was left out of my education!" Surely there could not have been a more apparently ingenuous and at the same time scathing repoinder!

On Ieaving school he was apprenticed to a hose-factor in London, in whose establishment he learned book-keeping, and underwent the dull but useful routine of commercial life. There is considerable doubt as to the date of his first publication. A pamphlet published in 1683, and eutitled, "A Treatise against the Turks," in which the cruelty of the Turkish army at the siege of Vienna is severely condemned, has been attributed to him

In 1685 Defoe's apprenticeship came to an end, and in the same year James the Second ascended the throne of England. The arbitrary measures of the new King offended the independent spirit of the young Dissenter, and when popular discontent culminated in the insurrection of the Duke of Monmouth, Defoe was one of the ardent spirits who joined the movement. He fought at the battle of Sedgemoor, and on the failure of the Duke's enterprise fled to London, and had the good fortuue to escape the doom which befell some of his comrades at the hands of the brutal Judge Jeffries.

Shortly after Defoe set up in business on his own account as a hosier in Freeman's Court, Cornhill, which he carried ou with varying fortune until 1694. Meanwhile King James had made himself very obnoxious by depriving the Protestant officers of their commissions, and putting Catholics in their stead. Defoe wrote several pamphlets condemning the King's conduct as dangerous to the Constitution, the first of these publications begging date the 4th of April 1687.

demming the thing's conduct as dangerous to the Constitution, the first of these publications bearing date the 4th of April, 1687.

When William and Mary entered London he served as "a volunteer trooper, gallantly mounted and richly accoutred." In those days his place of residence was at Tooting, and he was instrumental in forming a Dissenting eongregation at that place. He appears to have been a sort of commission-merchant in Spanish and Portuguese goods, and it is stated that he occasionally visited Spain on business. At a later period we find him referred to as a "civet cat merchant," not because, as some of his biographers have foolishly assumed, he kept a collection of civet cats, but because "the civet cat" was the sign of his place of business. In 1692 he failed for the large sum of £17,000, partly (as he himself tells us) through giving too much credit, and after struggling for two years longer he retired from business.

After this he undertook the management of tile works at Tilbury, of which he was also the principal owner, but this commercial enterprise was also doomed to failure. Before this period he had managed to escape imprisonment for debt, and a story is told of his having hidden himself for a week on the occasion of a visit to Bristol, knowing that bailiffs were ou his track, and, having at length emerged in gorgeous raiment on Suday, when he could not be arrested, in consequence of which escapade he was known by the nickname of "the Sunday gentleman."

But it was not as a man of business that

But it was not as a man of business that Defoe was to make his mark, though his commercial experiences coloured some of the literary productions to which he owes his fame. Having been favourably noticed by King William, of whom he proved himself a staunch supporter, he was in 1695 appointed Accountant to the Commissioners of Glass Duty, which office he held for four years. During this time he produced his "Essay on Projects," in which he put forward some valuable suggestions on banks, road-management, friendly and mercantile societies, idlot asylums, high schools for women, and other subjects. The eareful student of Defoe's political writings will find that he anticipated

the doctrine of Free Trade which has been so intimately associated with the name of Cobbett. Then followed a panphlet on Conformity, and a "Defence of Standing Armies." Having incurred the animosity of both Whigs and Tories for his unflineling criticism of both parties, he published a satire in verse, entitled "The True-born Englishman," in which he vindicated his own political views. On the death of King William he ridiculed

On the death of king William he indicated those who affected grief at the event in a satire ealled "The Mock Mourners." Soon after this he published his eelebrated pamphlet, eutitled "The Shortest Way with Dissenters," in which he ironically suggested that all those who refused to conform to the Establishment should be sent to the gallows. The result of this publication was that a warraut was issued for his arrest. He fled from London, but advertisements were circulated giving a description of his personal appearance, which, as it is the only one left to us, is rather interesting:—"A middlesized, spare man, about forty years old, of a brown complexion, and dark brown coloured hair, and wearing a wig; a hooked nose, a sharp chin, grey eyes, and a large mole near his mouth." He was arrested, and, after a short trial, fined 200 marks, and condemned to be pilloried three times, to have his ears cropped, and to be indefinitely imprisoned. The ear-cropping operation was not performed, so that Pope's line—

"Earless on high stood unabashed Defoe"-

must be regarded as a poetic fiction; but he certainly had to stand in the pillory, where, instead of being hooted, he was the object of popular admiration, bunches of flowers being flung at him by the spectators, as a mark of sympathy. His "Hymn to the Pillory" is one of his best poems, and coutains some eapital lines. In concludes thus:—

"Tell them the men who placed him here Are scandals to the time, Are at a loss to find his guilt, And can't commit his crime."

The last line is an example of Defoe's peculiar irony. He remained in prison till August, 1704, when he was released by the intercession of Harley. A spurious edition of his works having been published while he was in prison, he issued a complete collection of them himself. While still a tenant of Newgate he started a newspaper, called "The Review," which he continued to publish three times a week. One portion of it was called the "Scandal Club," and discussed pretty freely the foibles of social life at the period. In this way Defoe may be regarded as the originator of "society" journalism. Unfortunately there is only one complete copy of "The Review" now in existence, and so its characteristic merits can only be ascertained by fragments.

After this, he published "The Consoli-

After this, he published "The Consolidator, or Memorials of Sundry Transactions from the World in the Moon," and "The True Relation of the Apparition of one Mrs. Veal," which is one of the best ghost-stories ever written, being told with all the gravity and circumstantiality of a true narrative. This, indeed, is the great charm of Defoc's writings. They possess a wonderful realism which gives even to pure fiction all the air of truth.

In none of his works is this power so vividly exhibited as in "Robinsou Crusoe," the first part of which did not see the light until the 25th April, 1719. It ran through four editions in as many months, and in the following August appeared the second part. From some passages in the third volume, entitled "Serious Reflections during the Life and Surprising Adventures of Robinson Crusoe," it would seem that Defoe, in writing his most celebrated work, partly intended to present an allegoric picture of his own life. Though he lived in the busy world of London, he, too, was a solitary, and had to endure contumely, isolation, and imprison-

ment. Speaking of Crusoe's enforced confinement, he says: "'Tis as reasonable to represent one kind of imprisonment by another as it is to represent anything that really exists by that which exists not. Had the common way of writing a man's private histery been taken, and I had given you the conduct of the life of a man you knew, and whose misfortunes and infirmities you had sometimes so unjustly triumphed over, all I could have said would have yielded no diversion, and perhaps scarce have obtained a reading, or at best no attention, the teacher, like a greater, having no honour in his own country.

Perhaps this passage may explain Defoe's motives for not having left behind anything like an authentic autobiography. Another reason is, no doubt, that he was the depositary of certain State secrets, which he did

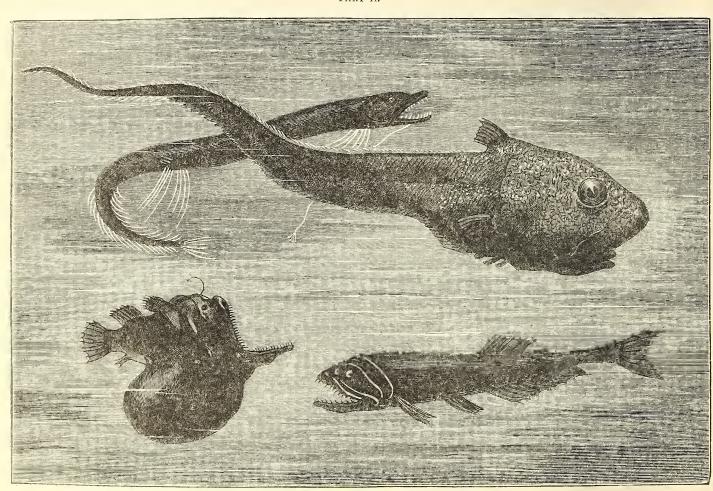
not care to divulge.

The success of "Robinson Crusoe" induced Defoe to publish in rapid succession a number of fictitious narratives, amongst which may be mentioned. "The Life of Duncan Campbell," "The Memoirs of a Cavalier," "Roxana," and "Captain Singleton." He also wrote "A System of Magic," "A History of Apparitions," and a quaint work, half humorous, half speculative, entitled "The Political History of the Devil." The "Journal of the Plague Year" and "Robinson Crusoe" are, however, his two most we?known works, and nearly every reader of English literature is familiar with them. It is sad to relate that, in spite of his genius and literary activity, the last years of Defoe's life were spent in great poverty. He appears to have lad a quarrel with his son, of whose neglect he bitterly complains in one of his letters to Henry Baker, who was married to

his daughter Sophia. He died in lodgings at Ropemaker's Alley, Moorfields, on the 6th of April, 1731, in his seventieth year. He left no will, and administration to such effects as he had was taken by a creditor. He had been twice married, and had altogether seven children. It may not be forgotten that in April, 1877, public attention was called to the fact that three ladies bearing the name of Defoe, and claiming descent from our author, were in exceedingly distressed circumstances in some part of London, and that the Crown very properly settled on them a pension of £75 a year each. It was a slight but grateful tribute to the memory of the illustrious writer, who may fairly be described as the first great English journalist and the father of the English novel, but who will always be best remembered as THE AUTHOR OF "ROBINSON CRUSOE."

HOW TO SORT THE ANIMALS.

PART II.



Eustomias obscuras. Melanocetus Johnsonii.

Vertebrata: Pisces.

Macrurus globiceps. Neostoma batyphillum.

The second class is the Tunicata, or baglike animals, of which the Ascidian is an example. They have no head or shell, but the body is covered with a leathery coat containing cellulose. The Polyzoa have no heart, the Tunicata have an imperfect one. This celebrated heart consists of one cavity without valves or partitions. When it contracts it forces the blood into the abdominal vessel and thence through a network of smaller vessels into the dorsal vessel; then for a time it geases to beat, and on beginning work again

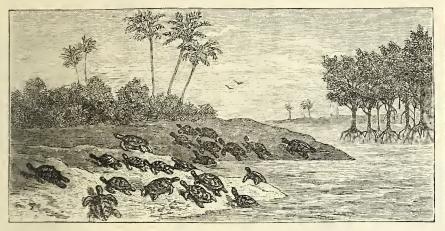
it reverses the process and sends the blood back from the dorsal to the ventral vessels. The third class is the Brachiopoda, with their mouth between a pair of long arms. To it belong the lamp-shells, so numerous as fossils that it has been suggested they owe their name to their throwing a light on geology. A Brachiopod has a bivalve shell, but the upper valve is always smaller than the lower, and is attached to the front surface of the animal; in fact a Brachiopod may be said to sit up in his shell

With the fourth class we begin the Mollusca proper. This comprises the Lamellibranchs, such as oysters, scallops, and mussels, which have bivalve shells attached to their sides, so that they may be said to lie down in them. The oyster and his allies have a well-developed heart and one or two gills, but no head and no teeth. The class next above the Lamellibranchs are the Gasteropods, comprising the univalve shells and the slugs. They have a good heart, a distinct head, and a toothed tongue, and they

either creep about or swim on the under surface of their body, which forms the so-called "foot" from which they take their name.

Higher than they are in the scale of life come the Pteropods, in which the animal, such as

not now represented; the Sepiadæ, comprising the ordinary cuttle-fish, Sepia, and many fossil genera; and the Spirulidæ, of which the representative is the existing Spirula. Of the feur-gilled Cephalopods there



Vertebrata: Reptilia,

Cheodora, has a wing-like appendage on each side of its head. These are all very small, therein differing much from the next class of the Mollusca, the highest class of the invertebrate kingdom, the Cephalopoda, of which we give three specimens. These Cephalopoda—the word merely means head-footed—lave eig'st or nine arms arranged in 2 circle round the mouth. The mouth has two very powerful jaws, the lower overlapping the upper, and it leads to a crop and two other stomachs, the lower of which is a gizzard. Some of the Cephalopoda have shells, some have not. Slugs, which have no outward some have not. Slugs, which have no outward shell, have a small internal shell or "gladius," and cuttles have an internal skeleton much of the same kind, while on their heads is a peculiar cartilaginous ring surrounding the gullet, on the upper part of which are the eyes, with the cephalic ganglion between, and opposite to them the ears, with the pedal ganglion between. The cephalic ganglion is the representative of the brain, and the ring may be said to represent the skull. There is a boost with a criving capillaries because a heart with arteries, eapillaries, lacunar spaces and veins, and there are salivary glands, a large liver, and, for the first time, a pancreas. All the Cephalopods are marine and carnivorous, and swim or walk about the bottom of the sea head downwards by means of the while for the result for result the metric. bottom of the sea head downwards by means of the split foot round the mouth, which is provided with suckers. In early life this foot is solid, like that of the snail, and it is gradually split into arms as the animal grows. There are two orders of Cephalopods, one having two gills, the other having four; and the Dibranchiata or two-gilled cuttles are divided into Octopods, in which the foot is split into eight branches, and the Decapods, in which it is split into ten branches. There are only two orders of Octopods, one, the Arger of Octopods. are only two orders of Octopods, onc, the Argonautidæ, having only one genus, that of the Paper Nantilus, which has an outside shell; the other the Octopodidæ, having the poulpes and their allies, which grow to such an immense size as to become quite the terror of the seas. An alarming sight is a huge ugly cuttle walking about on a few of his gigantic limbs—some thirty feet long!—and swinging about the others in search of wishing about about the others in search of mischief, while about the others in search of mischief, while his big cruel eyes glare like the carboys in a doctor's shop! He is represented in some quarters as pulling over-boats and even good-sized ships; and he is quite spiteful enough to attempt such a thing, though hardly strong enough to succeed. The ten-armed Cephalophods have really eight arms and two clavate tentacles. They are divided into four families—the Teuthidæ, comprising the Squids and Calamaries and many fossil genera; the Belemnitidæ, entirely fossil, and

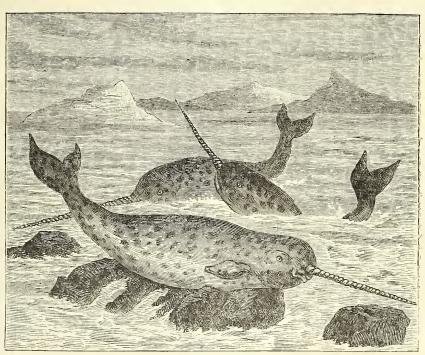
are but two families—the Nautilidæ and Ammonitidæ, and of these the Ammonites are all fossils, and the other has only one representative at the present day, the Pearly Nautilus, which is unmistakable. There is a great difference between the shell of a Cephalopod and that of any other mollusk. It is divided into a series of chambers by plates or "septa," the edges of which, where they appear on the shell, are termed "sutnres." The outermost chamber is the largest, and in it the animal lives; and the chambers are united by a tube called the "siphuncle." The position of this siphuncle is the readiest means of distinguishing between the Nautilidæ and Ammonitidæ. In

animal realm is divided into animals with backbones and animals without, and that the division is about equal. Do not fall into such an error. The backboned animals are in a hopeless minority if numbers only are taken into consideration, though they are by far the most important of the six great divisions of the zoologist. They are divided into five classes.

First come the fishes breathing with gills, and having either fins or no limbs at all. There can be little doubt as to what constitutes a fish. We give some strange examples from the deep sea. Next to the Fishes come the Amphibians, having gills in their early stage and lungs in their later life. To this class belong the frogs and newts and salamanders. The third class is that of the Reptiles, which have not gills, but lungs, and have cold blood, and the skin covered with scales or plates. To the reptiles belong the turtles, tortoises, snakes, lizards, crocodiles, and five orders entirely extinct. The fourth class is that of the Birds, which have lungs and warm blood, and the skin covered with feathers.

The fifth class is that of the Mammals, which

The fifth class is that of the Mammals, which have lungs, warm blood, and the skin covered with hair. There are fourteen orders of mammals. First come the Monotremes, like the Australian ducknole and echidna. Then come the Marsupials, such as the kangaroos and opossums. With the third order we begin the placental mammals. To it belong the sloths and anteaters, and other toothless subjects, whence it gets its name of Edentata. The fourth order is that of the Sirenia, to which belong the manatee and dugong. The fifth order is the Cetacea, and to it belong the whales and dolphins and porpoises. The narwhals, of which we give an illustration, belong to the Cetacea; they are a long way below the walruses that follow them, as will be seen immediately. Next to the whale order comes the great order of Ungulata, the hoofed animals, comprising rhinoceroses, horses, asses, hippopotami, pigs, camels, giraffes, deer, sheep, goats and cattle-



Vertebrata: Cetacea.

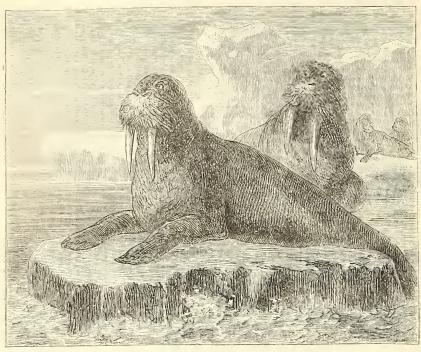
the Nantilus family the siphuncle is central; in the Ammonite family it is external, running along the convex side of the curve.

And now we have reached the last of the sub-kingdoms, that of the Vertebrates. In some quarters it is still considered that the

The seventh order is that of the Hyracoidea, comprising only the hyrax, which was taken away by Huxley from the neighbourhood of the rhinoceroses. The eighth order is the Proboscidea, with the elephants and the extinct mastodon and deinotherium. The ninth order is the large one of Carnivora. To it

belong the so-called beasts of prey, such as bears, lions, tigers, wolves, cats, liyenas, and so on, and amongst others, somewhat unexpectedly perhaps, the seals and walruses. The weasel and the walrus in the same order! All the Carnivora have two sets of teeth, which are covered with enamel, and are always of three

tivores, in which very humble individuals have been promoted to high places, for it comprises the moles, shrewmice, and hedgelogs, which want the peculiar incisors of the rodents. Next above the insectivores rank the Quadrumana, the four-handed animals, or monkeys, with the lemurs at the bottom



vertebrata: Carnívora,

kinds, incisors, canines, and molars; and the canines are always four in number, and much larger and longer than the incisors. rabbits, rats, etc.—which have no eanines, but very prominent incisors. Then comes the eleventh order of Cheiropters or bats. Then we have the twelfth order of Insec-

of the scale and the gorilla and chimpanzee at the top. And last of all come the Bimana, the two-handed animals, of whom at present but one species is recognised, that of the classifier of the kingdom, who naturally puts himself at the head and modestly calls himself Homo sapiens.
(THE END.)

0 U R TURKEYS.

This little story is strictly true, strange though it seems, and happened to myself some years ago in the Province of Auck-

self some years ago in the Frovince of Auckland, New Zealand.

I was living at the time on a "Bush" farm, with my husband and a brother-in-law. My husband had been an officer in the — Regiment, and served in the second New Zealand war, but he had, alas! through ill health, to turn his "sword into a ploughshare"—in other words, to leave the service and turn farmer! This is what brought us and turn farmer! This is what brought us out to our Home in the Bush. I am not going to tell you of our life there, except so far as has to do with this anecdote of "Our Turkeys" Turkeys.

Our turkeys did not live with the rest of our poultry, but they lived some three or four miles from our cottage and home paddocks (every sort of field is a paddock in New Zealand, from one acre to two hundred acres or more), and were therefore in a semi-wild state, feeding themselves on what they could find in the way of grnbs, crickets, etc.; and, when wanted for the pot, had to be run down by the dogs or else shot, but this latter way imparted so gamey a taste that the real flavour of the bird was almost entirely lost, and every boy knows the delicate flavour of a Christmas turkey! Then the eggs—how few we were ever lucky enough to find, so many of them being destroyed by the hawks, and by a wingless bird called a Weka," or Maori hen. These birds are about the size of a common fowl, and have a terrible weakness for the eggs of other birds. Breaking a small hole in the shell, the Weka then sucks the eggs elean; so our turkeys did not multiply in the way they should have done.

So, after a consultation, it was decreed that they should be brought over, and in future be kept with the rest of the poultry—they were to be tamed somewhat, and then driven round to the home paddocks. I say driven, for turkeys can be driven just like a flock of Every day for about a week food, in the shape of maize (Indian corn) was taken over to the run, where sheep grazed and tur-keys fed, and scattered about in one place. Very soon the turkeys used to be found wait-ing at this spot for their food, and as a rule being more punctual to time than those who went over to feed them. Being now some-what tamed they were driven over, or rather round, for a harbour cut our land almost in two, to the farmyard, my husband and F doing this with the help of our gentle sheep-dog Lassie. It did not take many days for the turkeys to feel quite at home and comfortable in their new quarters.

Well, time went on, and I grew alarmed at the amount of food my turkeys consumed. Always hungry, and not having, I am sorry to say, the best of manners, I soon found that the rest of my poultry came off very badly at feeding-time, unless I could stay near to see that there was fair play, and that near to see that there was fair play, and that the turkeys let my poor hens have some-thing! And then the noise the creatures made about the place from the first thing in the morning till the last thing at night! Well, the upshot of the whole thing was, that we repented much ever having brought them over and thought we had better send them over, and thought we had better send them, or at least some of them, back to their old quarters. No sooner said than done; so the next morning at feeding-time some ninc or ten of them were eaught, their legs tied, and carried down to the beach and put into one of the boats. This time they were rowed across the harbour which ran past our cottage and home paddocks, and, as I said before, cut us off from our sheep run; to walk cut us off from our sheep run; to walk round was some three or four miles, while it took about ten minutes to row across-that was providing there was not a south-westerly gale blowing, when I have known our men take over half an hour to pull over—and quite impossible at times to row over with live stock on board.

Nobody would have much cared for an Nobody would have much cared for an upset in our harbour, as it was infested with sharks; a chance of being drowned would be bad enough—but sharks!—one's blood runs cold at the very thought. But the day I write of was a true New Zealand day, without a cloud in the sky and the harbour like a very millpond; so some ten minutes saw the boat safely pulled up on the opposite shore; and there, one by one, the poor turkeys were carried up the hill, and with legs untied and plenty of food left on the ground for them to eat, they were left to take eare of themselves -so they did, but not quite in the way we

The day passed on with its usual round of work—and the work of an up-country farm and farmhouse is no light work, I can tell my boy readers; real steady downright hard work, and yet for all that it is a healthy life, and for those who love dumb a healthy life, and for those who love dumber creatures, how much enjoyment may be had from that very work! Fowls were fed, cowmilked, and tea was standing ready on the table in our little sitting-room; our should autumn day drawing to a close, and we already felt glad of the cheerful glow from the wood fire which was burning away merrily on the learth. I stood on the verandah, looking out over the harbour, admiring the calm unruffled sea and listening to the the calm inruffled sea and listening to the ripple-ripple of the little waves as they broke on the beach just a few yards from the garden. Ever and again the silence was broken by the hoarse cry of the "More Pork" (a small speckled owl) or the human-like scream of the little grey Penguin.

My one provide to my large family of

My eyes roamed to my large family of ducks sporting themselves in the sea, taking a final "dip" before going to bed. All at once I saw them make a sudden rush, as if frightened by something, and flying on the water hither and thither. "A shark!" thought I, for, as I said before, our harbour was full of these very unpleasant creatures. was full of these very unpleasant creatures. No! what were those dark-looking birds or animals (I could not at first make out which) bearing right down towards my ducks? and, I could now see, the cause of this general stampede among my aquatic pets; not wild stampede among my aquatic pets; not what ducks, I could see, being far larger, and a less graceful movement on the face of the water I had never seen. I ran into the house for our field-glasses, and taking a good look at these strangers (as I thought), I could see they were making for the beach in front of the house, then a sudden swerve to the left, and away they went from the house towards some rocks about a hundred yards off. One landed! What legs — what was it? Down went the glasses, and down rushed I to the beach, calling as I went, "All of

^{*} This bird is only found in the Middle Island of New Zealand, but those spoken of here had been brought some years before by the owner of the pro-perty from whom we rented our farm.

you here, quick! Our turkeys, our turkeys!" A general rush to the rocks (oyster-covered rocks they were), and there, one by one, landed—miserable, bedraggled and woe-begone—our turkeys! So cramped were the poor creatures, they could hardly stand, and well was it for them that help was so near. Each of these feathered adventurers was

Each of these reathered adventurers was carried up to the house, carefully and tenderly dried, and brought to life again, over our sitting room fire. One only succumbed to the cold and wet, the others lived on and were, as far as I know, "happy for ever after." It is needless to say that we had not the heart to could have bear to know and have a conditional to the country heart hour and have a conditional to the country heart hour and have a conditional to the country heart hour and have a conditional to the country heart hour and have a conditional to the country heart have a conditional to the country have a cond heart to send them back; how could we? and moreover, on going over the next day, we found the food that had been left for them untouched. So homesickness, or something like it, alone must have been the cause of their taking to the water. I think they had their taking to the water. I think they had it pretty much their own way after this. If anybody said, "Oh! what a bother those turkeys arc," they were pulled up at once by, "How can you say that? just look at their devotion to us—well, perhaps to their comfortable quarters as well!" Ah, well! the turkeys are gone now, and that peaceful happy home by the waters of the Pacific is mine no longer.

Some years after this happened I came across the account of turkeys in their wild state in "Wood's Natural History," where

he speaks of the turkey as a very migratory bird, and goes on to quote Audubon, who gives an account of turkeys in one of their migrations. Audubon speaks of their always proceeding on foot "unless their progress proceeding on foot "unless their progress be intercepted by a river, or the hunter's dog force them to take wing," and then goes on to say (speaking of them coming upon a river which has to be crossed): "At length, when the weather appears settled, and all around is quiet, the whole party mount to the tage of the highest trees whence a significant control of the length of the set of the highest trees whence a significant control of the set of the highest trees whence a significant control of the set of the highest trees whence a significant control of the set of the highest trees whence a significant control of the set of the set of the highest trees whence a significant control of the set of th the tops of the highest trees, whence a signal, consisting of a single cluck, given by the leader, the flock takes flight for the opposite The old and fat birds get easily over, shore. even should the river be a mile in breadth, but the younger and less robust frequently fall into the water, not to be drowned, however, as might be imagined; they bring their wings close to their body, spread out their tail as a support, and, striking out their legs with great vigour, proceed rapidly towards the shore, on approaching which, should they find it too steep for landing, they cease their exertions for a few moments, float down the stream until they come to an accessible part, and by a violent effort generally extricate themselves from the water. It is remarkable that immediately after crossing a large stream they ramble about for some time as if bewildered. In this state they fall an easy prey to the hunter.'

OUR PRIZE COMPETITIONS.

(NINTH SERIES.)

Jubilee Illuminating Competition.

(Continued from p. 784.)

THIRD DIVISION (ages from 12 to 15).

Prize-One Guinca.

This prize will be shared by two competitors :-

CHARLES EDWARD LUCAS (aged 14), 82, Brockley Road,

Brockley, S.E.
WILLIAM ERNEST WATKINS (aged 12), S, Lower Hillmorton Road, Rugby.

CERTIFICATES.

[The names are printed according to the order of merit.]

SYDNEY GEORGE WINNEY (aged 13), Inglewood, Langley Park, Sutton, Surrey.

ARTHUR F. F. CAMPBELL (aged 141), 275, King Street, Hammersmith, w.

CHRISTOPHER SMITH (aged 12), 77, Elm Grove, Brighton. CHARLES MORRIS (aged 141), 37, Stanhope Street, Abergavenny.

L. M. STONER (aged 12), 33, Oseney Crescent, Camden Road.

R. HENNAH (aged 13), 37, Sutherland Square, Wal-

JOHN H. RILEY (aged 14), Birkhouse Terrace, Crossland Moor, Huddersfield.

ERNEST HOWELL (aged 14), 2, Bedford Terrace, Scaford,

ALEXANDER H. SMART (aged 14), 37, Newark Street, Greenock.

C. RUSSELL (aged 13), Ellesmere School, NORMAN Harrogate.

CHARLES DANIEL WARD (aged 14), 16, Paul Street, Tannton, Somerset.
CHERRY WADE ROBINSON (aged 14), 1, Clermont Road,

Preston Park, Brighton

PERCY J. S. RYAN (aged 14), Gladstonville, Victoria Terrace, Cheltenham. ERNEST ALFRED BECKETT (aged 14), 163, Dalston

JOHN GREENE (aged 13), 3, Charlwood Place, JOHN CURTIS (aged 14), 1, Glan Irvon Terrace, Bineth,

Breconshire PHILIP HOLMES (aged 14), Warwick House, Grove Road,

Sutton, Surrey.

ROCKSBOROUGH R. SMITH (aged 14), 77, Elm Grove,

LEON EUSTACE SMILES (aged 14), Church Fields, Ches-

G. OSBORNE (aged 14), Greenhills, Drogheda.

GEORGE ARTHUR TURNER (aged 13), 31, Chesholm Road, Stoke Newington, London, N.

W. H. TOWNSEND (aged 14), 89, Pease Hill Road, Nottingham

M. FAIRMAN (aged 14), 5, Atholl Place, Ediu-

GEORGE SINCLAIR (aged 14), 21, Brougham Street, Edinburgh.

CHARLES E. FORSYTH (aged 141), 9, Lonsdale Terrace, Edinburgh. SAMUEL JOHN WILKES (aged 141), Sunny Bank, Whaley

Bridge, Stockport.
ERNEST C. PEARCY (aged 12), 9, High Street East, Sittingbourne, Kent.

H. S. WATKINS (aged 12), 48, High Street, Eton,

A. F. Molloy (aged 14), Caprera House, Auckland Road,

CHARLES FREDERICK SHORT (aged 14^3_4), 98, Blenheim Crescent, Notting Hill, London, w.

GILBERT D. SEWELL (aged 14), 12, Ryder Terrace, Twickenham.

GEORGE EDWARD BLOIS (aged 14), Newton Villa, Cranmer Boad, Forest Gate, Essex. ROBFET ARTHUR FULLERTON (aged 13), 1, Gransden Road, Rylett Road, Shepherd's Bush, London, w.

RICHARD THOMAS JEFFS (aged 14), 75, Great Holme Street, Leicester. ALFRED H. LEE (aged 14), 14, Church Street, Doncaster.

E. B. Short (aged 1212), 6, Birkbeck Road, Acton, W.

CLIFFORD WALL (aged 14), 5, Derwent Street Meadows, Nottingham. EDWARD ROBERT MUSK (aged 141), 22, Kelly Street,

Kentish Town. HARRY GEORGE NORRIS (aged 13\), Devoushire Cottage, York Square, Commercial Road, E.

HENRICH PETER BAUMGARTEN (aged 14), 7, Skerving Street, Langside.

D. WILLOUGHBY (aged 14), 32, Montagu Square, Hyde

G. A. GRAHAM (aged 12½), 35, Walton Well Road, Oxford.

EDUARDO ENRICO AUGUSTO FORST (aged 13), care of Mrs. Ivesou, Crick, Derby.

EDWIN GELLETT (aged 12), 16, Spencer Street, Halton Road, Canonbury.

JANET SYMINGTON (aged 14), Mount Harriet, Hoggan-field, near Glasgow, Scotland.

M. M. WARD (aged 14½), 15, Albion Road, Tunbridge Wells.

ARTHUR MARSHALL BARRETT (aged 12), 28, Dalmeny Road, Tufnell Park, Holloway, N.

FREDERIOK HENRY WARD (aged 12½), 15, Albion Road, Tunbridge Wells, Kent. EDWARD W. SPAWTON (aged 13), North Cave Railway Station, R. S. O., Yorks.

FRANK MARR (aged 13), 31, Westfield Road, Horusey, N.

WILLIAM WALTER CHANNON (aged 14), 89, Rockingham Street, New Kent Road.

JUNIOR DIVISION (all ages up to 12). Prize-Half-a-Guinea.

PERCY S. TAPP (aged 11), Idle, near Bradford.

CERTIFICATES.

WALTER G. JOHNSON (aged 11), 80, Chalk Farm Road. ERNEST EDGAR EALES (aged 10), 365, Cooksey Road,

WALTER SHEPPARD VEONAN (aged 11), 13, Palmer Street, Frome, Somerset.

CHARLES GELLETT (aged 11), 16, Spencer Street, Halton Road, Canonbury.

THOMAS PEPLER REEVES (aged 10), The Beeches, Fratton, Westbury, Wilts.

WILLIE JAMESON (aged 11), 6, Chester Mews, Regent's

Off and Away!

Now pack up your knapsack, and mind you don't pack

A thing you'll not want—keep it light as you may;

Remember it has to be borne on your back, And one ounce grows two t'wards the end of the day.

Then get out your guide-books and make out vour route

In Switzerland, Scotland, the Lakes, or elsewhere.

Some district your pocket and fancy may suit,

And pick a companion your travels to share.

Some fellow you know, who's good-tempered and bright,

With tastes like your own, for your fun will depend

In no small degree on your choosing aright The person with whom the next few weeks you'll spend.

Of this I am sure, you'll discover the fact That each must give way to a certain degree,

A touring companionship always needs tact, No matter how close the companion may

And now you have started and left care behind,

Your playground's before you, hill, river, and dale,

Aud should but the clerk of the weather prove kind,

Twill be your own fault if enjoyment should fail.

You wake in the morning and feel you are free.

No office awaits you, no ledgers to cast,

A plunge in the river, it may be the sea,

Then breakfast, which now is a real breaking fast.

That done you set off for your next stopping-

Through scenes that are new, be they mountain or fell;

Don't race off too quickly, keep one steady pace,

Or blisters and aching joints sad tales will tell.

You lunch in some inn, or perhaps on the road,

In Romany style, which is far better fun, Then forward again to your next night's

And pleasantly weary your day's tramp is done.

For some time you've felt that a palpable void

Has somewhere inside you commenced to exist,

Your dinner's well earned, and is really enjoyed,

You've won for yourself a remarkable twist.

And then comes a stroll, but it's lazy and slow,

And not very long, for the daylight has sped.

The views you can look at to-morrow, you know,

At present there's one place you're fit for —that's bed.

And so the days pass in a bright merry round,

Dame Nature displaying her treasures to you,

And health and enjoyment together are found

'Mid scenes that are constantly changing and new.

SOMERVILLE GIBNEY.

Correspondence.

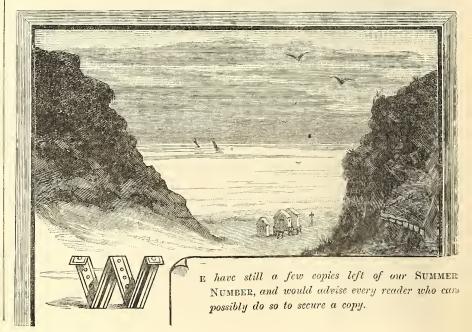
- A RANK CONSERVATIVE.—1. The engine articles on "How the Reedham Boys Made their Cardboard Models" were in the December part for 1882 and the January part for 1883. 2. The index to the seventh volume is out of print. 3. The back volumes cost the same as the current ones, but the first and second are out of print. 4. We quote your account of "How I made a very good Graph for Ninepence": "First I bought at an oilshop eight ounces of glycerine at a penny per ounce; then two ounces of Scotch glue for a penny (I could not get Russian glue, hut I found the other do just as well). I melted the glue with eight ounces of water, and when thoroughly melted added the glycerine and stirred it for five minutes; poured it out into a tindish, and it was ready for use in about an hour. For ink I bought at the C. S. S. A. Stores, 138, Queen Victoria Street, a bottle of Judson's violet dye for threepence-halfpenny. I can print fifty copies."

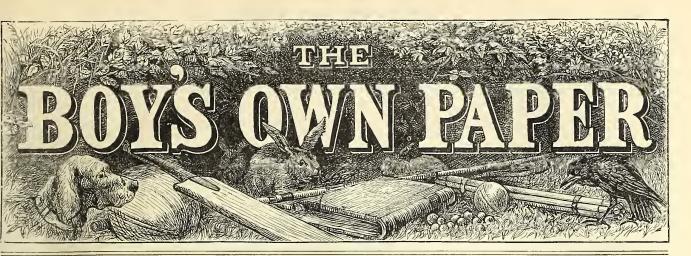
 P. HEWSON,—Let the mast be the length of the boat,
- P. Hewson.—Let the mast be the length of the boat, the bowsprit three times the beam, the gaff half the length of the keel, the hoom half as long again as the gaff, and the topmast the same length as the hoist of the mainsail. The boat will steer truer with a straight keel, and probably get on better if you leave off calling it a "yaght," which shows a deficiency of observing power, and observing power is necessary in model-sailing!
- NYM.-1. Macaroni is made of flour and water. 2. Rub the skin with vaseline.
- Andrew.—Our articles on Bees were in the second volume. They were republished with additions in a five-shilling book, obtainable from Mr. Tarn, 56, Paternoster Row. The title of the book is "The Honey Bee," by W. H. Harris. It has eighty-two illustrations.
- ANXETY.—If the boy has won a money prize he has ccased to be an amateur. It matters not how old he may be. The best plan would be to buy something with the money, and explain the circumstances should the question ever be raised—which it is not likely to be.
- W. TAHOURDIN. A "run-out" does not count as a wicket in the bowler's analysis. No skill in bowling would result in a run-out, and the bowler therefore gets no credit for it.
- AN ELECTRIC ENGINEER. What do you mean by a cheap book? Try Silvanus Thompson's "Electricity," published by Macmillan.

- GEOLOGIST.—You can buy specimens of minerals or fossils from Gregory, of Charlotte Street, Fitzroy Square, and other dealers who advertise in "Nature," "Science and Art," and "Science Gossip."
- ROBUR.—We do not value stamps. Send to Mr. J. W. Palmer, office of "Bric-à-Brac," Strand, W.C., or any other dealer you know.
- EMIGRATION.—Try Clayden's "Handbook to New Zealund," published by Wyman and Sons, Great Queeu Street, W.C. Your best plan would be to apply to the Emigration Enquiry Office, Broadway, Westminster. You will there get full list of recent and appropriate books.
- R. C. STEVENS.—1. Before you can enter the Army or Navy as a doctor you must be qualified to practise among civilians. Hence you must go through the usual course of study at the hospitals and examinations, and when you have gained your diplomas apply for latest particulars to the Army or Navy Medical Department, as the case may be. 2. Try Henfrey's "Botany" and Kirke's "Physiology."
- CRICHTON.—If you use armorial bearings you have to pay a tax. If you have not inherited them you can get a grant from Herald's College on paymeut of a fee.
- J. VESEY.—The Sunbeam is of 565 tons.
- Marine.—We do not answer medical queries. Diseases of the eye are most difficult to deal with. You should consult some first-class man. The best plan would be to call at one of the large hospitals.
- would be to call at one of the large nospitals.

 T. P. NEESON.—In the fourth volume the chief serial stories were "The Fifth Form at St. Dominic's," "The Two Cabin Boys," "The Cryptogram," "Through Fire and Through Water," "Wild Adventures round the Pole," and "The Ill-used Boy." In the fifth volume the chief stories were "My Friend Smith," "The Drummer Boy," "Godfrey Morgan," "Twice Bought," "Stanley O'Grahame," and "The Two Chuns." Back numbers are sold at the same price as those that are current.
- A POWDER MONKEY.—The examination-papers of the Science and Art Department are published in the Science Directory, obtainable from the South Kensington offices, price sixpence. You can get it at the bookstall in the museum.
- BENDEMERE.—The last century ended on the 31st of December, 1800. This century began on the 1st of January, 1801. There is no difficulty in the matter, and no room for two opinions; if a century consists of a hundred years, why should the first century have only uinety-nine?
- Gallieo.—1. For a good microscope you could not do better than try Swift in Tottenham Court Road, or Eaker in Holborn; but you will not get a good one, either new or second-hand, for the price you name, 2. Green parrots often talk. Some of them are as good talkers as the grey ones. 3. There used to be six, but it is being reissued.
- J. THORNTON.—It is impossible to say what will increase your height, but you will give your growth every chance if you take a spell for a quarter of an hour daily at Indian clubs, dumbbells, or gymnastics, and learn to swim. All outdoor exercise would be beneficial.
- AMATEUR MUSEUM.— Elow your eggs by means of a hole in one side, and a smaller one at the end. Or, by the aid of one of the instruments sold specially for the purpose, you can manage with the side hole only. Take care that all the contents are extracted, and wash out the shells with water.

- H. CLARENCE.—Buy a "Times" and look at the column for yourself. You will then see "what it is for." The examples given were merely occasional curiosities.
- ROB ROY.—Shave for a time, and use a good deal of vaseline as pomatum rubbed well iu. This will make the hair grow stronger.
- DESPERATE LEPIDOPTERIST.—1. Try at an umbrella manufacturer's. 2. With only one or two exceptions there are no Noctuce on the wing in May. Therefore it is useless to sugar.
- B. TULLOCH.—Moth No. 1 looks like Noctua umbrosa, Moth No. 2 like A grotis exclamationis. But coloured figures of noctuae must be very exact indeed to be recognisable, and we will not undertake to pronounce for certain. The wheatear builds in holes in walls, stoue-heaps, holes in pit-sides, and sometimes even in deserted rabbit-burrows.
- CUSTOS COLUMBAR. You are a poor pigeon-keeper, as you sign yourself, if you buy birds without knowing how to feed them. Peas, tares, tick beans, grain of all sorts, water, gravel, and salt-cat.
- ESPAGNOL.—Thrushes should be taken before quite fledged. Feed on soft food early and late, from four in the morning till nine at night, a dozen times; German paste, meal-worms, insects, garden worms, etc.
- AJAX.—Any small seeds—canary, for instance.
- ZEALOUS.—Belgian hares will do to begin with. Advertise in "Exchange and Mart." Get a rabbit-book.
- MEDICUS—Blackheads in face are often caused by poverty of blood and want of free circulation in vessels of face. They are not worms, as you thirsk, but accumulations of sebaceous matter. Squeeze out, and apply twice a day a lotion of one grain of corrosive sublimate (poison) to an ounce of eau-decologne. Take a bark tonic, and keep system open by drinking cream-of-tartar water.
- A READER and J. F. GREIG.—See answer to ESPAGNOL.
- J. J. P.—Better consult a vet, or try compound sulphur ointment. But feeding must be altered.
- CHAS. GREY W-N. Consult a doctor at once. It would be a pity your figure should be spoiled. Your proportions are splendid for your age.
- Dove.—It is possible, but a mongrel would be the result.
- ARTHUR E. MORRIS.—Give the rabbits milk-and-water, or pure water. We are always pleased to answer, but no reply can possibly be given under six weeks, nor can we in any case reply through the post.
- CLIMBING IRONS.—Climbing irons of the latest pattern are kept in stock by Mr. H. W. Marsden, 37, Midland Road, Gloucester.
- L. L. N.—Black gold is a natural alloy of gold and bismuth. It is found in the granite veins in some quartz reefs. Specimens have come from the nuggety reef at Maldon in Victoria, which on analysis have been found to consist of gold 64.2, bismuth 34.4, and siliceous matter 1.4. It is crystalline, malleable, and, when fresh broken, silver-white, but it turns black on exposure.
- METEOROLOGIST.—1. It depends on the make of the barometer. If it is a pedestal one hold it slantingly and give it a few sharp jerks. This will unite the celuum. The break is au air-bubble that you must get to the top. 2. The question is absurd. The distance must very every second with the changes of the earth's orbit.





No. 453.-Vol IX.

SATURDAY, SEPTEMBER 17, 1887.

Price One Penny. [ALL RIGHTS RESERVED.]

A MAY-DAY SAIL.*



days out from Hong Kong, and quite expected to be at least half way to Singa-We had done the journey before in a week, and hoped to do so again.

The good ship was just out of graving dock at Whampoa, and had had such a scraping and oiling and cleaning as two years' cruising in Indian and China Seas

made imperative.

How proud her captain was of her that bright May day! Little did he foresee that ere the golden sun dropped behind the distant horizon she would bemust not anticipate, there will be time enough for sorrow and trouble. Let us revel in our present security, admire the ever-changing scene of sky and water, nor hurry to meet the fate so mercifully hidden from us. Could we but have known beforehand, even the strongest and stoutest-hearted man on board had qualled at the prospect. Before six o'clock that same sunny day I had seen a man, to whom the word "fear" was as the Greek language, pale to the very lips with horror.

On the starboard side loomed, fifteen miles off, the almost unexplored island of Hainan, the home and nest of Chinese pirates. At no time is a sailor an admirer of Hainan, nor wishful to get too close to it, but a good breeze often blows off the land, which does not extend very far out to sea, so that it is quite worth while sailing as close as possible for the chance of getting a blow which will send one

spinning along for many a mile.

I heard many a consultation that day as to the advisability of "hugging" the land more. One grey-haired officer said no—decidedly no. Another could see no danger in doing so, while the fearless captain laughed at the idea of pirates attacking a large ship of fourteen hundred tons. Besides, he did not believe in pirates, he had never seen any, and he guessed those that had must have been afraid of their own shadows. And then there was nothing suspicious in sight—only those lazy, odd-looking junks.

Orders were given, and right heartily the men obeyed the call. For the next hour all was activity and bustle; some sails were hauled down, while others went up, and there was the usual singing among the men as they tightened the ropes. Then came clearing the decks. All chains and ropes must be neatly coiled on each side, all dirt swept away, and the decks left free for the officers'

usual promenade and look-out.

The men betook themselves to the work they were engaged on when called to tack ship, and the old grey-haired officer trod the deck with his keen eve scanning the movements of the junks, which seemed to nearly follow our movements. What a lazy lot these Chinese are at sea! Our men all had occupation, either cleaning, polishing, or painting, sorting and repairing ropes, etc., etc., but these Chinamen, we could easily see, were lying lazily on their backs on the deck, apparently without a care in the world.

Eight bells; another watch on deck.

The light-hearted officer takes the lookout from the bridge, with strict injunctions from his superior to keep his eye on those fellows, pointing to the junks.

Eight bells—our dinner hour. I had earnestly pleaded for a four-o'clock dinner to be established when I came on board instead of the usual six or seven

hottest weather, some kind of a breeze comes, and be it ever so little it is welcome; and to be sitting in a hot cuddy, taking fiery soup and curry, and eating the countless highly spiced dishes of India, when the sun's fierce rays were departed and the real pleasant part of the day had arrived, was not to be thought of. So the evening was granted me for healthful exercise on deck, and our dinner hour was ordered for two hours earlier. It was certainly very hot that day as we adjourned to the saloon, and our mulligatawny and curry seemed hotter than ever. But long residence in India accustoms one to the diet, and dinner would be no dinner without them.

At last I can stand it no longer; cannot stay and take my coffee in this oven; I must have air to breathe. So I make a move into my own sanctum, with its many portholes letting in the cool evening. The two gentlemen betake themselves on deck as usual, but their cigars were destined not to be lit that night, nor for many nights to come.

The light-hearted officer meets his superiors at the companion, but he has an anxious look about him. He is always so cheerful that the change is quickly noticed. "I was just coming to you, sir," said he addressing the captain. "Those said he, addressing the captain. fellows are certainly behaving oddly they cannot surely mean real mischief, yet each of their decks has quite a large crew, and they are mighty busy all of a sudden. There seems to be a good understanding, too, among them all, for what one boat does so does his neighbour.

My dear husband walks quickly along with him, followed by the chief officer, who quickly scans the whole flotilla of They are indeed strangely close to us, but they have no other appearance than usual, except that there are more men about. Hundreds of these junks are to be seen at all times engaged in the mercantile service, and these must be the like. But he will not run any risk, and so gives directions for all hands to tack ship once more. Of course there can be no real danger, that is quite out of the question. But then there is the island on one side of us and fourteen junks on the other—harmless-looking enough, but still such things have been heard of before, and we must do without our breeze from the land to-night.
So "Tack ship!" rings out his clear

voice, and every man is on deck in an instant, astonished at the sudden order when we were almost within reach of the breeze which was rippling the water half a mile ahead. But the ropes are loosened, Then there the sails flap, chains rattle. comes a look of consternation. be? Are we indeed almost within the very grasp of pirates? A moment more, and the words "Pirates, pirates!" rang

from stem to stern.

I was on deck almost at a bound, gazing with terrified eyes at the scene before me. The junks were now crowded with nearly naked men, frantic with joy at our entrapment. The first movement of ours to extricate ourselves from our perilous position and point our bows to seaward had been quickly frustrated. At a signal from their leader a red flag was shot up one of their masts, and like lightning every deck of those fourteen junks was manned by at least fifty men, coverings were removed, and revealed well-

murder, while active hands plied their long "sweeps" in haste to intercept our unhappy ship before she could get enough way on her to carry us out to sea. Their object had evidently been to completely encircle us, and drive us before them to torture and to death.

In a few seconds it seemed to me they had formed themselves in shape like a horseshoe, leaving one small opening undefended, which all their dexterous management of their ships had failed to fill. This was our only hope. If our good ship did not get her bows through that gap before the deficiency was remedied not one of our lives was worth an hour's purchase.

How they worked, captain, officers, men, boys, only forty all told, against seven hundred! The odds were fearful.

"It is perfectly useless," said the carpenter to me; "we may as well give in. Listen to the guns and rifles! What chance have we among those hundreds?

No chance—no chance!—I thought, but a merciful God above us. How I prayed that sunny evening! It seemed all I could do then, though I could find no words. My husband found me out presently, with agony in his ashy-pale face, for he knew there was worse than death for me if he fell. He begs me to go below for his sake, out of danger for the present

With what little strength is left me I move slowly down. My feet seem like lead, I can scarcely draw them along. My hands have lost all feeling, I have no power even to clutch anything for support; and yet I feel I must do something to help. What if the pirates get on to help. What if the pirates get on board! They are so close, hanging to the rudder-chains, shooting at the wheelman, who, brave fellow, never leaves his post, though for the last half-hour he has been a target for their shots. He bravely ducks his head as each shot passes him, till the smoke nearly choking him, he first kneels down, and finally sits on the deck, with the wheel still in his hands. He never leaves go of his work for an instant, but he is a sensible as well as a clever fellow, and knows he can best serve us by preserving his own life while still keeping to his post. Even one man less may presently make all the difference to us, where there are so few.

Will our good ship never get way on her? It seems to take hours before her bows are really turned towards our only loophole, and these wretches are having it all their own way so far. As fast as our sails are set they are riddled. Ropes and cordage are giving way, and come rattling down on the heads of the unhappy crew. What is that fearful crash? Are we

sinking? No; only one of the iron plates torn away by the enemy's guns.

There is no one able to ascertain this new disaster at present, but I feel I must see how things are going on, though I must not appear on deck, for it will but increase my dear one's agony. I go to one of the still open portholes in my sanctum, and find myself almost face to face with a pirate, who is struggling to reach the rudder-chain. Terrified, I hastily withdraw, and not one moment too soon, for another crash follows, and this time almost in my very face. I saw the stern give way, shot, bullets, pieces of iron whirling past me, and clean through the bath-room door at the farther o'clock. The best part of the twenty-four hours is the evening. Then, even in the and instruments ready for torture and the saloon, while at the same time and instruments ready for torture and the stern locker, couches, cushions, and lounges are in splinters and rags, and

flung all over the floor.

The steward, a delicate-looking young man, comes forward to see if I am safe. The noise and destruction in the saloon are no greater than what is going on on deck, and the men are far too busy there, while the din and screams of delight from the pirates as each gun does its work are far too deafening for them to be unduly attracted by the latest crash, and so at present they are unconscious

of this fresh danger below.

"I think the pirates intend setting fire to the ship as well as sinking us!" said the steward; "they are throwing burning cotton-wool on board, for they know how oiled and greased everything about the decks is, and it won't take much to make a flame! I cannot stay with you, madam, for I am throwing the burning balls overboard as fast as I can, and looking out for the first fellow who shows his nose above the ship's side. They would have been on board half an hour ago, only, thank God, we are iron, and our sides are smooth and slippery, and, being in ballast, are high out of the water, and their hooks won't catch in the side; but so many plates being torn from us will make stepping-stones, as it were, for them. We have forced our bows through the gap, God be praised, but they are after us like sleuth-hounds. I will send a boy to you, and if you could help him to pump water, and fill the buckets in case of an outburst of flame, and help load the rifles, we could get on a deal quicker, for all we want now is plenty of firearms, to pay them back a bit. A good puff of wind, and we could race the

He hastily departed, and I am again alone. Oh, for one look at my husband, to know that he is safe! I look towards the water, that lovely calm green sea. Must I indeed find a grave there before night? I am so young; I have had such a bright, happy life, and in full health. Must I take now that life away to save myself from a worse fate? But there is work to be done now. We must use all the means in our power, and put our

trust in God.

villains yet!

The fighting goes on on deck still the same, but with greater fury, for we have now time to handle our rifles, though they are only a few in comparison to those of our foes. But there is no reckless firing on our part; each shot is for a certain man, and does its work. We could not afford to waste powder on the air. We are not a gunboat, only a neat clipper-ship, and our arms have seen

little or no service.

Suddenly there seems to be a greater commotion on deck. I must see, danger or no danger. So I creep along, as much out of sight as possible. One of the largest junks is almost alongside, and One of the her crew are full of the wildest excitement. What new horror are they hatching?—they are so busy running about their fresh occupation. They have ceased their fresh occupation. They have ceased firing, but evidently they are not going to give up their nearly-acquired victory, they are too frantic with joy for that. Many of them are whirling themselves round and round, shouting with the confidence of complete and ultimate success. They have not been able to board us, nor sink us, nor set fire to us. We are not such easy prey as they thought. What, bullets and nails, lie in then, is this new excitement? Thank God! the damage to our plates is all above as darkness creeps on.

water-line so far, and though our sails are nearly though not quite uscless, still now that our bows are pointed in the right direction, we might save ourselves if only a puff of wind would come, or, better still, a good stiff breeze. I fancy there is a little more wind. Our men have noticed it too; they are going from rope to rope, tightening and strengthening. The wind is surely coming at last!

But our foes show no sign of relinquishing their nearly won prey; on the contrary, they seem about to bring matters to a climax. Are all their well-made plans to be frustrated? all their powder and shot wasted? Fourteen boats to our one, seven hundred men to our forty, and still we float, and are unhurt bodily. True, we have lost two large iron plates, and had our rudder-post blown up. Every boat on board is riddled with shot, and about as seaworthy as a wicker basket, while our decks are charred with fire and literally covered with bullets, old nails, pieces of iron, and the like. But all this does not make us theirs, and we are evidently moving a little—just a very little -bit in advance of them, only an oar's length at a time; but every puff of wind seems to add another foot to the dis-

What are they going to do? All eyes are fixed on the junk alongside, where the greatest activity goes on. Suddenly something is run up their mast as high as it will go. It looks very much in shape like a tea-chest with the lid off. Out of this appears a man holding a large ball of something in his hand. He is going to throw it on our decks, evidently, and draws himself backwards to take good aim, for he must not let it fall into the water. There is no fear of our escaping if it safely reaches us, it will explode and smother us. Not an explosion that will sink us and endanger them also, but a stifling, choking, suffocating

explosion, sure or speedy death to us all.
The man stands with the deadly missile in his hand, quite still for one moment to fully take his aim. I hear my husband's voice, as the meaning of it all forces itself on him. "A rifle, a rifle," as he snatches one from a sailor standing by. A steady arm, a good aim, a sharp crack, and the head in the "tea-chest" has disappeared, the uplifted arm is dropped, and the tea-chest is quickly lowered by the yelling disappointed pirates.

We expect another to appear, but no, they are not brave enough to be run up the masthead, only to be shot down like

We have gained a hundred yards! Is

it to be a race for life?

On we go, closely followed by our would-be captors. Our object is to strike out to sea. They, on the contrary, like to keep as close as possible to some of their well-known harbours of refuge. But there is still light enough for a few more efforts. It has not been bad management on their One look at our poor dilapidated ship shows how wonderfully true their aim has been in most respects.

We leave our firearms and look to the sails, tightening some, loosening others, and making efforts to remove some of the rubbish with which our decks are strewed. Broken boats, splintered wood, snapped chains and cordage, shot, both bullets and nails, lie in heaps, and render moving about most dangerous, especially

We are still being pursued and fired at, but we do not now retaliate. We feel that our good ship is increasing her distance, and the darkness will also add to our hope of escape. They will have to give up pursuit before long, or they will be miles out of their beaten track, and should a calm follow at sunrise, it might be days before they saw their beloved Hainan again.

So they go on firing, and we go on sailing; and I look, till at last I breathe more freely, and walk straight up to the group of men and officers, centered amongst whom I see my dear husband. He is gazing at our foes, who are now in the distance, though still pursuing. So I do not speak, but just slip my hand in

My touch causes him to turn, and he draws me to him. Bending his head down, he kisses me, before men, boys, officers, all, saying at the same time, so proudly, "At any rate I have found that my wife is no coward. Nervous in storms she may be, but in real and terrible danger she has kept a brave little heart. We have had the comfort of working and planning together, but she has been all alone, bearing in silence all this agony.

It is almost dark now, but I do not see

any lamps being lighted, so I ask, Can the wheelman see to steer without a light? "We must all do without lights tomight," is the reply; "we must not give our foes a single glimmer to show them our whereabouts. The night falling is our salvation, though the risk we run from collicion with athenyogosks of convergence. from collision with other vessels of course is great. We must all keep watch tonight, and by daybreak, please God, we shall be thirty miles ahead of the pirates if they choose to keep up their little game

It takes such a long time to write this true story, and yet the hours of that night were alone a lifetime. I must sit on deck too, if every one else must; down in the saloon, alone, and in darkness, is more than my overstrung nervous temperament could bear. Even though all sounds of pursuit have ceased, there is still this quick sailing, in utter darkness. In our damaged condition a collision would sink us in five minutes, or should the freshening wind cause the sea to rise, we should take in water with every "dip" we made. We know we have lost two entire plates at least, if not more, one from the stern, but where the other is we cannot find out till the morning, for we dare take no lights below. The pumps have been tried, and we have ascertained that we are making no water, so the damage is above water-line at present. But if the sea rises it will soon rush in, and the anxiety of all is most profound. The darkness and wind which save us from the pirates, may still find us a grave before the sun rises.

With the early hours my husband sits with me for a short rest. He has been groping about with the men, trying to bring order out of chaos. It is most dangerous to move for fcar of stumbling, or being tripped up in the dark with the debris. We can only talk of the one topic the anxiety, the uncertainty, the longing

for morning light.

This night of watching is too much for me. Shall I ever feel young again? I wonder, Did I ever laugh and sing? It all seems so long ago if I ever did. I feel about eighty years old in less than twelve hours.

Our first act, when the sun rose, and the pirates were nowhere to be seen, was one of prayer and thanksgiving. It was not our strong arm or doughty deeds that had won us this victory—nothing, nothing in all the world but the merciful protection and mighty aid of the "Giver

And now a long day's work lay before us. I follow nearly everywhere I possibly can, and words fail me to picture the ruin that had befallen us. But the great work of the morning was to find out where the

second plate was torn from.

I am not allowed to follow below, so I wait with all the patience I can command. I hear many exclamations, much running about, and at last active steps taken. My husband appears once more with the officers. They are talking rapidly, and with much excitement. He is giving directions for some work to be begun at once. I do not worry him with questions, I will soon gather the news by listening

and watching.

The damage is on the starboard side. We had been sailing all night on the port side. When we tacked ship the night before, our foes, to stop us, gave their guns full play, and succeeded in tearing away one or two plates, most fortunately for us all on the starboard side. Had it been the reverse this narrative had never been written, for we must all have gone to the bottom like a stone. Or had the wind changed in the night and compelled us to tack again the result must have been the same. We should just have fallen over quietly to starboard and foundered.

We carried an engineer, fortunately, and with help he managed to screw on a spare iron plate as well as he could. It was only a makeshift kind of affair, but it was tolerably watertight, and, we hoped, would last till we got to Singapore. It took him all day to fix, and not

an hour to spare, before night fell again.

I watched the other men as they removed the *débris* on deck. The captain's gig, "now a few planks" (many a pleasant sail I have had in her), and the lifeboat were in a similar condition. Thirteen buckets of shot were shovelled up by the

Towards afternoon a steamer was sighted. We ran up signals of distress to arrest attention, and in half an hour she was lying across our stern. She was bound for London, and all her crew and passengers gathered in groups, looking with astonishment at our shattered hull and sails.

The two captains converse eagerly; one is as anxious to learn as the other is

to tell. Questions and answers are all to the point. "We wish to be reported;" "Attacked by pirates;" "Much damage done;" "No need of assistance at pre-sent." Should they stand by us for the night? No, it is not absolutely necessary.

I am invited to go on board the steamer, where there is a doctor and many lady passengers, who would kindly sit with me and comfort me after my terrible ordeal. They will be in Singapore in a few days, and will leave me in charge of our agent's wife, who will see to my safety and comfort till our ship arrives there.

But I will not hear of it; it would be no comfort to me to be placed in safety unless my husband could come too. That, of course, is out of the question, so I prefer to stay where I am, and face

whatever else is before us.

The "good-bye" is said, the salaam given, the flags are dipped, and I see them sail away, with just a little feeling of regret. We never met those kind faces regret. We never met those kind faces again. Only half an hour's talk in midocean, and yet how strangely drawn together—we by our trouble, they by their kind sympathy.

It may be a few weeks before we get to Singapore. All depends on how long this fair wind will last. We are at the end of May, and June generally ushers in the stormy season, both in this sea and

in the Indian Ocean.

As the days pass by I am more and more thankful that I remained here with my husband. He is not well, and the weather is fearful. Junc came in its very worst, blowing contrary and raining incessantly. Some days we scarcely make a mile in the direction we wish to go, though racing nearly three hundred miles in the twenty-four hours.

I see anxiety written on every face. So much more vigilance and watchfulness are required, for our repairs have proved by no means watertight, and should the makeshift patches be swept off in thesc heavy seas, then the "end" will be very

near for us all.

Days pass into weeks—nearly four weeks. We are nearing Singapore, after weeks. We are nearing Singapore, after passing through the greatest storms and perils. To add to our trouble, we have sickness on board. My husband is lying on a bed in the saloon with bronchitis and fever. Cold and exposure had brought on the first, anxiety the latter. I had a bed made up for him in the saloon to give him more air for the heat. saloon to give him more air, for the heat is intense, and the fever high. At times he is quite delirious, and wanders, talking about the "light" to be seen entering into Singapore, and sending for the officers every hour to point out to them

where to look for it. His hands move vaguely over the chart, pointing to quite the wrong places. But they humour him, and he is satisfied for a time. In his snatches of sleep he talks all the time of lights, lighthouses, channels, and pilots. His poor brain does not seem to have one moment's rest. I realise now how deep his anxiety has been; all our lives and the safety of the ship depending largely on his good management and judgment.

In a state room close to us lies one of

the boys, also ill with fever—low-river fever the doctors called it when they came on board at Singapore. It is not always of itself dangerous, but it so often turns to typhus of a malignant type. It did so in this poor lad's case, and when we left Singapore for India we left him in his grave. Poor Robert!

Two of the men were ill in the fore-

castle with the same fever, but of them I saw nothing. I had as much to do as I could manage to tend my husband and the boy, and the steward and officers looked after them. They both recovered, I am glad to say.

It was midnight when, three days later, we anchored before Singapore. Shore-boats had been round us hours before, and by one of them we had sent for doctors and shore comforts, such as ice, milk, eggs, etc., for our poor invalids. They were all too ill to be moved, so our ship was turned into a hospital. Later on we went up the country for change of air before we again started for Calcutta.

The day after our arrival at Singapore all the town turned out to look at and inspect us. Boatmen reaped a harvest, taking passengers round the Fortuna, while the "upper ten" who owned yachts spent days in taking their families and friends round us. Such an attack had never been heard of. The Government took the matter up; two gunboats were dispatched in search of the pirates, and two junks were captured. The scoundrels were handed over to their own mandarins, whose mode of justice is quicker than ours. They ask no questions, but cut off their heads at once.

The ships lying off the port, on their voyage to China, were all putting themselves in a state of defence before starting. All kinds of arms were bought up, were they ever so old or rusty. Rifles and guns were cleaned and tried. In fact, our arrival caused quite a scare amongst the shipping. Of course, we had been reported, and looked out for, but no one expected to see such a wrecked-looking ship. The wonder was how we ever managed to weather the storms, and to get into port at all, in such a state.

T O MSAUNDERS:

HIS SHIPWRECK AND WANDERINGS IN TROPICAL AFRICA.

BY COMMANDER V. LOVETT CAMERON, R.N., C.B., D.C.L.,

Author of "Across Africa," etc., etc.

CHAPTER XX.

WE hurried on our way for fear the people who had run us to earth in the caverns of Mkanna might have crossed the Lufira, but we never saw any signs of them, and in a few days we

reached the outlying villages of the town of the Kazembe, and were by one of his kilolos ordered to stop at once on the banks of the Luapula until he received orders from his master as to how

we were to be received. From him we learnt that two Wazungu were living with the Kazembe, and had been with him for four or five years, having remained behind when a great party was

sent by Moene Puto (the King of Portugal) to try and open up trade with the Kazenbe. At this village we had to wait two days before the messengers who had been sent to announce our arrival returned, and with them came the two white men, whom I found to be mulattoes, who had remained behind when the Kazembe was visited a few years before by the Portuguese officers, Majors Monteiro and Gamitto. Their names, they informed me, were Manoel and Gaetano, and that though they had many slaves and much ivory, which they had gained by exercising their trades of smith and carpenter, they were very tired, indeed, both of the Kazembe and of the country, and would be very willing to take any opportunity of making their way to their native town of Tété.

They said that I would have much trouble in getting away from the court

of the Kazembe, as in respect of keeping white men with him he was as bad as the Muata Yanvo, of whom, although living all this distance from him, he was a vassal. This was bad news for me, for I feared very much that I might be detained until news came of our conflict in Ulunda, and that I would have to contend with the prejudices of the Kazembe. I hardly knew, also, whether I could trust these two men, for they could give me no good reasons for remaining behind when their leaders returned to Tété, and I was afraid lest they might have quitted their party on account of bad behaviour. Ngöi and Bill, whom I now consulted on everything, fully shared my fears, but we agreed that it would be useless for us to attempt to get away now, and we determined on taking the bull by the horns and visiting the Kazembe at his town on the lakelet Motwe, as if we really desired to see him.

We erossed the Luapula in canoes, which had been ordered to be ready, and found on the opposite side a body of two hundred men, who appeared to have some ideas of drill, and to march in order under the guidance of their appointed leaders. As soon as we were landed we were surrounded by three men and marehed off, headed by a band, which made a most discordant noise on several strange and outlandish instru-

ments. We found that our guides, or guards, were in no apparent hurry, for they halted at every village, and made the inhabitants provide food and drink for them as being on the Kazembe's business, and we received our share of these forced contributions as being his guests. Manocl and Gaetano were not at all behindhand in taking what they wanted and seemed to me to have thoroughly adopted the manners and habits of the people among whom they were living. Three days were consumed in this dawdling progress, and when at last we arrived within sight of the Kazembe's town we were made to halt for yet another night, so that he might receive us on our arrival with all due pomp and ceremony.

We endeavoured to put ourselves in the best possible trim for our reception, and two hours after sunset the sound of drums warned us that the time was come to go and meet the great chief. Soon after leaving our night's lodging we came to a broad cleared road fenced with canes, which was lined by bodies of men under the command of officers, who each

rank and authority, and each of the divisions had its band of drums, horns, and barbarous instruments, which struck up as we passed. For nearly a mile we passed along this road accompanied by our escort, when, hearing a noise of shouting and clapping of hands, we were told to halt, and our escort wheeled to either side, leaving us standing alone. We now saw the Kazembe approaching, sitting on a litter borne on the shoulders of sixteen men, and standing behind him on the litter was a man, who held over his master's head a huge parti-coloured umbrella, the edges of which were fringed with the skin of a long-haired monkey, and ornamented with copper bells. Around the litter marched a number of men carrying spears and shields, in front of whom well-ed the design of the shields. walked two dwarfs, who proclaimed aloud the titles and power of their sovereign. Behind this litter was another band, and then came three more litters, one carried by twelve men and the other two by eight each, on which were seated the three principal wives of the Kazembe, escorted by a number of women, who were armed like the men that surrounded their king and master, and after them came a band, in which all the performers

When he came close to where we were standing the Kazembe alighted from his litter, and seating himself on a stool which was placed for him, he commanded ns to approach and ordered Manoel and Gaetano to inform him who we were and from whence we came. These two worthies, in order to increase their own importance, said that we were envoys, whom, in consequence of letters they had written, Moene Puto had sent from the other sea to visit the great chief Kazembe, and assure him of his friendship and good wishes. On this the Kazembe, who was richly dressed in silk and velvet, and whose arms and legs were covered with bands and strings of beads of many colours and patterns, told us we were welcome, and, signing to some slaves, who bore great bowls of native beer, to approach, he drank to the prosperity of Moene Puto, and then telling us that we were welcome, he desired us to inform our sovereign that the great Kazembe had received us properly, and that if he would send him many people he would provide them with much ivory and copper, and many slaves in return for the goods which they might bring. considered it best to agree will all the Kazembe said, and on his remounting his litter we followed him to his town, where huts were assigned to us for our lodging, and where large quantities of fish, caught in the Motwe, flour, and native beer, were sent for our use.

Scarcely had we bestowed ourselves in our huts when two of the ministers of the Kazembe came to ask what were the presents that we had brought from Moene Puto for their master, and proved most grasping in their demands. They insisted on examining all my loads and packages, and Manoel and Gaetano, in order to curry favour for themselves, prevented anything being concealed, and though fortunately they were too ignorant to know the value of our gold, they, instead of assisting me in reducing the demands of my visitors when I sought to satisfy them with a moderate amount of cloth, said that Majors Monteiro and Gamitto carried a gaudy umbrella as token of his had given much more. I was almost in

despair as I saw that there was every probability of our being fleeced of all our goods and left destitute of any means of buying provisions on our road to Tété.

One load which I had not opened at all during all our travels, and which I left to the last, as I thought it only contained common calico, proved, on the contrary, when it was unlashed, to be a bale which Guilhermé had prepared specially for occasions like the present, and in it were looking-glasses, cups, hawk's-bells, and three suits of gold-laced uniforms, and cocked hats.

As soon as these were seen they were demanded, as it was said that they must have been intended by Moene Puto for the Kazembe, and at first I was asked why I had kept them to the last. much difficulty in persuading the Kazembe's ministers that I had not had any intention of doing so, but at last they consented to take this back as their master's present, but insisted that in addition I should give him four of our muskets, which, after much discussion, I having now been settled, my visitors having now been settled, my visitors began to beg for themselves, and I saw that my scanty stores would soon be exhausted if I was too facile in yielding to their demands. I at last said that I would give them nothing more, and if they persisted in pestering me I would at once appeal to the Kazembe for protec-tion against them. This staved them off, and they departed, taking with them the presents for their master.

When they had gone Manoel and Gaetano began to beg on their own account, and when I appealed to their honour and forbearance, and asked them how it would be possible for me to feed my men on the way to Tété, said they did not see why I should not remain at the Kazembe's court as well as themselves. I replied that I could not dream of such a thing, but at last I promised if when I got_to Tété I could find means of doing so I would, in return for any assistance they might render me in getting away, send them goods enough to enable them to purchase permission to return there, and also to buy enough ivory to make them well-todo when they returned to their own people. After much discussion they promised to do as I asked, and told me that some people called Wabisa were in the habit of trading between the Zambési and the court of the Kazembe, and that a caravan of them were shortly expected, and that if I played my cards well I might possibly get away with

Next morning I was sent for to attend the morning reception of Kazembe, which he held in an open cleared space in front of the large enclosure in which the huts of his numerous wives were situated. I found him sitting on a stool under a sort of awning, the poles supporting which were surmounted by human skulls, and just as I arrived I saw three unfortunate wretches beheaded by his executioners, without, apparently, attracting any special attention from the people who were surrounding him.

The Kazembe was now dressed in one of the uniforms which I had given him, but he had not been instructed how to put it on, and looked most droll in con-sequence; he had got on the trousers stern foremost, and the epaulettes he had tied on to his knees, whilst the hat, as it did not sit well on his elaborate head dress, was tied on by a bandage of cloth under his chin, which made him look as if he had either the numps or toothache. On either side of his stool was a small cannon, which I was astonished to see, knowing the difficulties of transport in African travel, and which I was told had been left by some Portuguese who had visited the then Kazembe some fifty years before. These cannon were evidently regarded with great respect, and were decked out with fetishes and beads, though, when I had an opportunity of examining them I saw they would have been more dangerous to those who fired them than to those they were directed against.

The Kazembe was surrounded by a number of chiefs and counsellors and his two dwarfs were also present, as

were some jesters or mummers, whose antics amused the people who were collected, and indeed excited much more attention than the poor wretches whom I saw killed when I arrived.

All the chiefs were in their best, and a large number of the Kazembe's guards, many of whom were armed with muskets, were drawn up behind the awning. I was told to sit down on a stool, and Manoel and Gaetano acting as interpreters, I was examined about Europe and our journey until, as a plain sailor, I was often at a loss for an answer. The Kazembe said that he was willing to excuse my present being so small, after my long and dangerous journey, but that I must tell Moene Puto that he wanted many things, cloth, beads, guns, and powder, and that

he would send in return slaves, ivory, and copper.

I was glad enough to hear the audience was over, and now I thought that I might be allowed to think of my journey Tété, but there was for many weeks, which slowly lengthened out into months, an inclination to make me remain, and employ me sometimes to drill men, which I did after a rough and ready fashion. sometimes to build houses, and my having unfortunately let it be known that I was a sailor, he ordered me to build him a boat on a lake called Moero, near the town. But whilst I was only commencing her the Kazembe heard of an insurrection in the southern part of his dominions, and hurried off to quell it, commanding my attendance.

(To be concluded.)

ALONE:

A SAILOR'S STORY.

CHAPTER IV.

Hard and bitter thoughts, and doubts of the goodness and justice of God, filled my mind. I had prayed for help and strength to overcome my many difficulties, and as my prayers had been granted only to this end, it seemed to me in my wicked blindness as if He in His strength and power had only been mocking my weakness and helplessness. Soon, however, these evil reflections gave place to better ones, and I began to cast about in my thoughts for some means of saving my life.

my life.

Failing a boat, my only resource was a raft, and to construct this it would be necessary to use my jury-foremast and yard; and as the presence of the fire compelled me to abandon all ideas of ever sailing the Bessie to a port, I concluded that the sooner I got them down and set to work the better. I had, besides these, three water-butts on deck, which were nearly empty, and would do well for giving increased buoyancy to the raft.

I sent down the spars and prepared to cut them up with much the same feeling one might have to whom it became necessary to destroy a faithful dog that had guarded and guided him safely through many perils. They had helped mc so, and had been such friends, that I felt almost an affection for them, inanimate wood though they were. However, it was not the time for sentiment, so I ruthlessly put the saw through the centre of the topmast, and then had with the yard the three pieces necessary to make a triangular raft. I first placed the two pieces of mast across the deck with about one-third of their length projecting over the side of the ship, the inboard ends crossed and the outer ones extended about twenty feet apart. I then securely lashed the inner ends together and "took a turn" to a ring-bolt to prevent them "cock-billing" when I added weight to the outside. Then placing the yard across them I rolled it to the outer ends and firmly lashed it there; I also secured the sides of my triangle to the gunwale of the ship. Next I put my tackle from the mainmast-head to the apex of the triangle and lifted it until the base was about two feet from the water, when I rolled two of

the water-casks overboard (having first nailed wooden "cleats" on them to prevent the lashings slipping), and floated them one under each corner of the raft, where I lashed them securely. The remaining one I fastened in the same way beneath the inner corner; and so I had the framework of my last hope. My next difficulty was to obtain planks for the deck. There were plenty on the coal in the hold, but I durst not open the hatches, as I knew the admission of air into the hold would in all probability cause the fire to at once break out, so I determined to try and get those off which I had fitted over the hatchway.

Drawing a few nails at a time from the cover, I managed to draw the planks out one by one until I had got them all without admitting much air to the hold. I then nailed them with large spike-nails across the triangle, so as to form a platform or deck. Into this I drove some spare eye-bolts to which to secure my provisions, and for extra security I lashed the plank ends to the spars. Thus I had a strong structure capable of carrying me and whatever I might deem necessary to take with me. I then hoisted up the inner corner of the tackle, and cutting the gunwale lashings, the thing slid out until it was only held by the inner cask; another pull on the tackle and a "pinch" with a handspike and I had it over the side and affoat, and then I passed it under the stern and secured it ready for my embarkation whenever the outburst of the fire should render that necessary.

As for provisions, I got the water-barrel from the pantry, which held about eighteen gallons, lowered it on the raft, secured it to the eyebolts and filled it. I next got up a barrel of biscuits and nailed canvas over it to keep it dry, only leaving a small opening at one end. Then I got several tins of preserved meats, a couple of bottles of rum, and a small cheese. These I considered would be ample for food. I also got the "flareup," which is an instrument for showing a blaze as a night signal, and a can of turpentine for burning in it. Of course I took my ensign and globe lamp, with a can of oil. A dozen boxes of

matches, an axe, a compass, the captain's watch and sextant, a coil of small line, the ship's binocular glasses, and a few other things which I deemed might be useful, completed my equipment; and laying a small sail on the raft, I deposited all my stores on it and turned the edges up over them so as to shelter them from rain and sea. I was now ready for leaving the Bessie at any moment; and as I saw the means of escape at hand and knew that I was not a prisoner on board the burning ship, my fears and despair grew less and hope began to return. Surely on such a raft, well provisioned as it was, I could manage to exist with some degree of comfort until I was picked up. I could not drift about in this part of the world for ever without being seen from some ship; and this reminded me that I must have some kind of a flagstaff on which to display my flag by day and lamp by night. I first thought of the main-gaff for this purpose, but concluded it would be too stout and heavy, so I had to be satisfied with an oar and a boathook lashed together. These I easily placed on end on the centre of the raft by launching them down from the stern of the ship; and I secured them by three guys, one to each corner of the raft, having first "seized" a small block to the upper end, and rove a small line for signal-halyards. As the prospect of escape opened out before me, my miserable terror and despair vanished altogether, and I felt quite jubilant as I surveyed my raft and looked forward to a happy termination to all my unparalleled perils and difficulties.

And so the time wore on. Day after day of calm, unruffled sea, and blazing, sweltering sunshine; the deck daily becoming hotter beneath my feet, until it was almost unbearable; and the fire seemed so near that I was almost afraid to sleep lest I should wake and find myself surrounded by the flames and cut off from my raft. Of course I always slept close to the stern, so as to prevent any possibility of such a disaster. At length the climax came. One morning I awoke at about two o'clock with a start of

affright, and saw the flames leaping and roaring through the main hatchway With a hasty prayer for that help and sustenance, in this new phase of my ad-yentures, which I had all along received, I swung myself over the stern on to the raft, and, cutting the moorings, I shoved off from the ship and stood upon it, sorrowfully watching the cruel flames as they spread, running along the deck and hungrily licking their prey. One long tongue in advance of the rest lapped and clambered round the foot of the mainmast, leaping and clinging to the spar as if endeavouring to reach the mainsail, which at last it did; and in an instant the sail, dry as tinder from long exposure to the tropical sun, blazed and flashed like gunpowder, and soon after the burning mast came crashing down, causing myriads of ruddy orange sparks to fly into the still, dark, morning air. Rapidly the flames gained their hold, consuming the deck, and leaving the huge body of glowing coal open to the air, which fed the fire. Higher and higher rose the roaring volume of flame, straight up in the calm, as if bent on mounting to the very heavens, and sending up before it a harbinger column of dense smoke, which rolled upward in a straight line sheer into the sky, where it hung in a dense pall-like cloud, as if to veil the spectacle from the peeping, twinkling stars, which were paling in the growing dawn. And how the smoke glowed with the reflected brilliance of the fire—until it was difficult to tell where the flame ended and the smoke began—and then dimmed away into a rosy cloud-shaft and melted into the sombre blackness above! And there, right beneath the ship, mirrored in the glassy depth, was the double of the volume of flame shooting downward into the deep, silent sea. It was an awful spectacle, and one not likely to be forgotten in a lifetime.

Rapidly the tropical dawn gathered in the sky, diminishing the brilliance of the terrible fire, and revealing the awful desolation of the scene. And then the glowing, copper-coloured sun rose in a tawny, silky tangle of translucent wisps of cloud, and paled the fierce glow of his rival fire, which at that instant, as if vanquished and driven away by the luminary, collapsed and died out as the hull of the Bessic gave way and sunk in fierce, hissing clouds of steam sent up by the glowing coal as it plunged into the sea. And so perished the Bessie, leaving no vestige of what was once a beautiful ship but a few charred fragments of wood dotting the unbroken quicksilver of the placid sea.

And higher mounted the blazing sun, sending down his stifling glare untempered by the faintest breeze. Desponding and wretched, I sat in gloomy thought on the motionless raft, occasionally scanning the horizon through the glasses with a desperate longing for the sight of a ship. Above me the flag hung straight up-and-down, and all around was stagnant, breathless silence. Once a huge shark came alongside and swam slowly round, as if reconnoitring and calculating how long he would have to wait for his prey; but after a while he disappeared. And then the glowing sun sunk into a bank of sombre cloud, and the rapid tropical darkness came on so suddenly that the stars seemed at once to burst into life. And the moonless firmament deepened into velvety-black, studded

with the myriads of gem-like stars, and luminous in places with clouds of vapoury

As morning broke I saw with dismay that the cloud-bank in the west had risen, and that the sky was streaked with shreds of silky-white cloud, too surely indicating the approach of wind. True that without wind I had not much chance of being rescued, as nothing but a steamer could come within sight in this calm; but I knew that anything approaching a gale would raise a sea that would sweep me off the raft, if it did not break it up. Light puffs of wind began to shed dark patches on the oily sea, gradually increasing in frequency and strength, until I had a sweet, cool breeze from the westward. As the wind increased so did my fear, the more so when I noticed a gradually-rising swell coming straight from the clouds.

The raft began to be lively enough now, tossing uneasily on the swell, and the flag fluttered in the increasing breeze, and surged and streamed, now this way, now that, as the mast swayed and lurched. Throughout the day the wind and sea increased, and I could do nothing but cling to my frail mast and pray. By night it was blowing what was, no doubt, merely a strong breeze, but what seemed to me, on my crazy, unsheltered craft, a hurricane. Curling tops of seas began to break over the deck and "swash" viciously round my water-cask and heap of stores. Momentarily the seas increased in height, and washed over the raft, and I became resigned to the death which I saw could not be far off. Several times I had almost lost my hold and been swept away by the rushing water. I said my last prayers, and committed myself to the care of Him who saw fit that I should not, after all, be spared to tell of the fate of the Bessie. A white, hissing hill of water gleamed before me in the darkness, and the next instant I felt my hands torn from their hold, and I was whirled helplessly away in the roaring waters. Blindly I struck out and rose above the surface, breathless and bewildered, and what was my joy to see the raft plunging and tossing but a fathom or two away! A few vigorous strokes brought me alongside, and, dodging to avoid a blow from the rising and falling timbers, I obtained a hold, and clambered upon it again. But what was my dismay to see the platform empty; water, stores, everything swept clean away

Truly fate seemed to be dealing hardly with me. Peril after peril had risen and menaced me, and I had as yet battled with and overcome them all, but I could see that even as I had accomplished each victory it had only been a step nearer the end. Slowly but surely my fate had been narrowing down until it had come to this: I had only escaped death in many forms to at last meet it in this, the most horrible of all, a lingering agony of hunger and thirst. I could see no hope of escape; hitherto I had had possibilities, and by making use of them I had overcome each danger, but here was the hard, cruel certainty face to face. I was without food or water, or any earthly means of procuring them! But one slender chance remained—that of being picked up, and I had but slight hopes of that; I had been so long now without seeing a ship, and I might just as likely be another week, and in that time it would be too late.

Thus reflecting on my wretched position, I clung to my tossing craft, seeing the white wave-crests start up before me phantom-like in the darkness, and expecting that each one would break over the raft and sweep me away. But as the night wore on the breeze and sea moderated, and by daybreak it was almost calm, with an uneasy swell which was, however, diminishing rapidly. And the blazing day commenced again, and soon the fierce heat brought on a dreadful inappeasable thirst, increasing until it became a positive agony.

How shall I describe my sufferings of

the next few days—how my baked lips cracked and my swollen parched tongue turned dry and hard? At times I gained slight relief by bathing alongside my raft, but hunger and thirst soon made me so weak that I was afraid to trust

myself in the water.

Slowly the awful time dragged on. In an agony of despair and torture I gazed around the livelong day, and prayed, oh, with what desperate earnestness, for the sight of a ship. Weaker and weaker I grew until the time came when I could see smiling green fields and sparkling streams of clear cool water, vines and orchards of luscious, juicy fruit. Aye, even vast rivers of limpid flowing water passed near me, but ever out of reach. In lucid intervals between these tantalising visions I was often sorely tempted to drink of the water beside me, but the knowledge that it could only increase my sufferings restrained me. At length the consciousness of suffering ended in a blessed oblivion.

"He'll do now; he only wants nursing and feeding back to health and strength. He'll come to himself very soon now, I expect."
"Poor fellow! he looks at a low ebb,

doesn't he?'

These words in two different but equally low voices were what I heard. I opened my eyes and looked wonderingly about me. By my side stood a bronzed and bearded man in a nautical uniform, and one whose "long-shore" clothes and more delicate appearance bespoke him to be a landsman.

"Well, my man, how do you feel now, eh?" asked the latter, when he saw my

eyes open.
"I can hardly tell you," I replied with difficulty, and in such a weak, quivering voice that I was startled at it. "But where am I?"

"You're on board the steamer Garonne, from Barbados for London. We picked you off a raft just about in time. But you mustn't talk now, you'll know all about it when you get stronger. I'll send you something, and then you must try to sleep again; you'll soon be all right, and by the time you get well you'll be at home again." And with these cheering words they left me.

Slowly, day by day, I gained strength. The captain and doctor visited me frequently, and spoke cheering, kindly words, which helped me on towards recovery almost as much as the rest and

nourishment I was receiving.
I have little more to tell. Nothing was ever heard of the remainder of the crew; so I concluded they must have been swept overboard at the time they were collected round the wreck of the foremast, and have perished in the furious, raging sea.

(THE END.)

DUMBBELLS, AND HOW TO USE THEM.

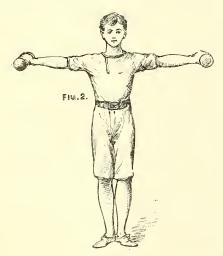
In our August and September parts for 1882 we gave a series of articles on Indian Clubs, which received a very hearty welcome from our readers. To those articles we refer such as are anxious to follow up the exercises given herein. We gave the clubs the preference as they are in growing favour amongst gymnasts, and in regular gymnasia are fast driving out the ancient dumbbell



owing to their wonderful power of quickly opening the chest and squaring the shoulders. We say "ancient dumbbell" advisedly, for it is at least two thousand years old. It was first introduced amongst us after being noticed on the Greek vases. The shape there given differed somewhat from that now in use, but there is no break in the chain.



The oldest form was that of a pointed capital D, the curved line being the handle; afterwards, as shown on the vases, the athletes adopted the form (Fig. A), from which our present bells are derived. Curiously enough, these bells were used in springing and leaping, the power given by the weights



being well known to the ancient as well as the modern records. Lawton's standing wide jump of 12ft. 6½ in. in 1876 was done with dumbbells in his hand, and Howard's flying jump on Chester Racecourse in 1854, when he cleared 29ft. 7in., was done from a block of wood, with a five-pound dumbbell in each of his hands, quite in the old Greek ctyle. However, it is not with the ancient

but the modern practice that we have here to do. And we have no time to waste on archæology.



In the first place, then, two pounds is quite heavy enough for any dumbbell, and under any eircumstances no bell, even for a full-



sized man, should exceed five pounds. Heavy bells of fifty or even a hundred pounds have been used, but they are now obsolete. For



merely lifting purposes weight was all very well, but as soon as it was shown that health owed more to suppleness than rigidity, and exercises were designed in accordance with the new theory, heavy bells became simply impossible. When they were used by the very strong they were found to give onesidedness, and by the weak they could not be worked with at all. Four pounds the pair is heavy enough for any boy, and most boys when they come to try the exercises will often wish that the bells were lighter. A word should be said as to price. Plain bells of cast iron cost from twopence to fourpence



per pound; if covered with leather, and thereby made considerably more comfortable to the hand, the price is from fourpence to sixpence per pound. For two shillings a lad can get a pair of bells that will suit him in every way and last him a lifetime. The shape of the bells does not matter; the leads may be round or octagonal, according to fancy,



but the handle should be thick enough to give a good grip, and it should be half an inch longer than the hand is wide.

Next, let it be elearly understood that

Next, let it be elearly understood that dumbbell practice performed in a slovenly way does more harm than good. It is essential that the exercises be done in strict time, not jerkily, but quickly and accurately as if

to the word of command. When the bells are required to be raised together, they



should go up together, not one after the other. When they are required to go up alternately, they should go up alternately, at equal speed, the left as fast as the right; when they are to be held out in front to-

tise after much head-work, and do not attempt any of the exercises before or after a heavy meal, no matter how light the bells may be. The best time to practise is immediately after the morning bath, and the best costume to wear is that of the mermaid, or as near an approach to nothing as is consistent with decency. Of course in gymnasia special dresses are worn; but, as absolute freedom is required, the model dress of the gymnast should be easily stowable in a glovebox.

And now for the first exercise (Fig. 1). Stand at attention, holding a bell in each hand. Let the arms and legs be quite straight, the body upright, the heels close together, the toes well apart. Hold the bells so that a line through your hips would pass through the centre of each handle. Move the bells an inch from your legs, and twist them round, keeping your arms straight and working your wrists. Do this backwards and forwards with both bells ten times. Then twist the left bell ten times. Then twist the right ten times; then twist them both together five times; thirty-five twists altogether, counting each reversal of the hand as one, beginning with knuckles backwards, and ending with knuckles forwards.

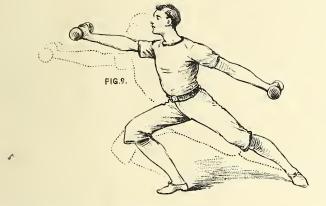
For the second exercise, stand at attention and bend up your forearms only from the elbow, holding the bells ont from your chest with the handles vertical and parallel. Now be on the top, and do the thirty-five twists as in the former exercises. The arms must be quite straight and there must be no giving at the knees or bending at the waist.

These three exercises are quite enough for the first morning, even though the bells may be under two pounds apiece. Next time we can run through these three exercises quickly and then try something rather more compli-

For the fourth exercise begin at attention, and keeping the elbows against the sides,



double up your arms so as to bring the bells against your shoulders. Open your chest as far as you can, throw your shoulders well back, and while in this position take a long deep breath (Fig. 8). In fact in every exercise take long free breaths as often as possible so as to expand your chest from within as well as from without. Bring the bells up and down ten times both together. You are now ready for the fifth exercise, which consists in bringing the bells from attention up to the shoulders as in the fourth exercise, and then thrusting them up straight overhead (Fig. 3). Hold them

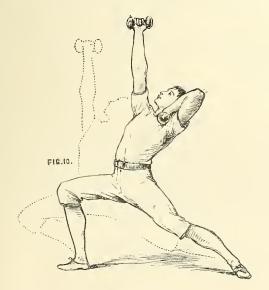


gether, they should be held out together, and change to the recovery as soon as the weakest arm begins to yield.

This brings us to our third eaution. Never overtire yourself. Ten minutes is quite long enough to practise at a time. Take the exer-

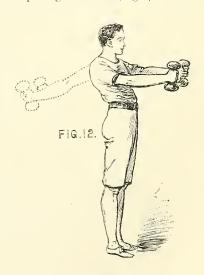
twist them ten times simultaneously, and then ten times with the left hand, ten times with the right, and five times together. Let your elbows be well back, pressing your sides all through this exercise.

For the third exercise, begin at attention,



cises in the order in which they are given, advancing gradually from the easy to the difficult, succeeding as you go. Do not prac-

raise your arms from your sides till they are level with your shoulders, forming one straight line with them (Fig. 2). Let your knuckles



up as high as you can, keeping your feet on the ground and body erect. Then do the twists ten times together, ten times with the left, ten with the right, five together; then with "one" to the shoulder and "two" to the hang, you recover your starting position.

hang, you recover your starting position.

In the sixth exercise you bring the bells to the shoulder, and keeping your chest well open, thrust your arms, not overhead, but straight in front of you (Fig. 4), and again do the

thirty-five twists. In the seventh (Fig. 15) you bring the bells to the shoulder and open your oring the bells to the shoulder and open your arms right and left, holding them out high and well back at full length, then recovering to the shoulder, and then down. Then "up," "out," "in," "down" again, and so on for ten times. Keep your shoulders well back during this everyise and do not less your up. during this exercise, and do not lose your uprightness! It is a most important and obviously good practice, should be done with care and regularity, and forms a fitting end to lesson number two.

In our third batch we have said good-bye to the twists. For the eighth exercise stand at attention, bells to side as before, and always start from attention. Let this be understood and it will save repetition. Bring the bells up under the armpits as far as you can get them (Fig. 5). Bring them up together ten times, then ten times with the left hand, ten

times with the right, and five times together.

In the ninth exercise bring the bells up to the armpit, and then extend the arms that and left, starting with the bells brought up in front of the shoulder and reaching the information as in exercise seven. Then the armpit, and then extend the arms right bring the bells back to the armpits and re-Do this ten times; that will be quite enough for the first trial.

For number ten bring the bells to the armpits, and then take them up overhead as in exercise five. Up together ten times, then

with the left and right alternately stroke for stroke ten times each (Fig. 7). Then try number eleven, in which the bells are brought to the armpits, then thrust up, brought down to the chest, and down to the hang—"one," "two," "three," "four"—ten times together, ten times alternately. Then try number twelve (Fig. 6), in which the bells go to the armpits, then aloft, then down well back on to the tops of the shoulders, then extended with a sweep as in number seven, back to chest, and down—"one," "two," aloft, "three," to shoulder, "four," to the limit, "five," to chest, "six," down to hang.

(To be concluded.)

TO THE TOP OF MONT BLANC;

OR, HOW TWO BOYS DID IT.

BY THE REV. WALTER SENIOR, M.A.

CHAPTER X .- NIGHT ON THE GRAND MULETS.

THE Grand Mulets rocks, to which our travellers had now ascended are situated travellers had now ascended, are situated in the middle of the breast of Mont Blanc and in the centre of his glaciers. All round and between them is a world of ice, and they rise to the view like tall black islands split into a hundred jagged peaks. They are seven thousand feet above Chamouni (from which they look only like black patches on a field of snow) and 10,500 feet above the level of the ocean. The earliest climbers of Mont Blanc made the higher ledges of these rocks their bed-chambers, and looked down from their various shelves at night on the camp fire blazing ruddily below. Nor were they perished with cold as may be imagined. The night air was indeed keen, but, wrapped in blankets and sheltered from the wind, they were well able to bear it, and the floor on which they lay remained warm with the heat of the sun long into the night. There is a chalet now perched on the bosom of the first rock, more than a hundred feet above the glacier, and looking sheer down to Chamouni. Here, having changed wet socks and wet boots for dry ones, and having ranged the wet ones in the hot sun, it is delicious to let go the thought of toil, and sit and bask away the well-earned hours of ease.

Hark! thunder! No, an avalanche, some

tower of ice which has tumbled over into its

ravine, loosened by the afternoon sun.

The mountain air excites the spirits.

Everyone is ready for a joke. Comical ideas begin to flow, and conversation grows easy

Bob and Harry asked the names of this peak and that peak across the valley. Could they see Lake Geneva? Where was Mont Buet and the Dent du Midi? Where was the Col de Balme? Then they began to question about the passes which were the most difficult, and so on; and thus the talk glided into Alpine adventures. One guide told how he had been swept down a mountain side by a tremendous avalanche. At the time he was only a porteur, and the chief guide had lacked judgment, and led his party into the middle of a wide, immense, steep snowfield. Great was the caution which had to be used. They might not speak a word, They might not speak a word, for a word might set that vast snow slope on the move. It was most extensive, and ran downwards no one saw where, and they were tracking right through the centre of it. Every foot had to be placed softly, every alpenstock used gently. How anxiously were their glances cast upwards as their slow procession moved along! Was all safe still? Was there any trembling anywhere! It was felt they ought not to be there, but now it was just as dangerous to return as to go forward. Suddenly the guide threw up his arms and eried out, "We are lost!" All that was then to be seen was a thin dark line far above. But the snowfield was there

parting from the mountain. We felt it shudder—then it slowly moved—then faster. It carried us with it. The pace began to It carried us with it. The pace began to quicken fearfully. We dug deep our bâtons; we firmly ground our feet; we faced and fought the descending mass. It was all of faster. The snow flew up like foam; it whirled us round and round. Mon Dien! I was carried to a couloir which sank to a frightful precipice; I was sucked down; and how it was I never knew, but I was next moment cast wonderfully out, I suppose by the convulsive action of the snow as it thickened in the couloirs, on to a ledge where I was safe, and there I saw the hissing, swirling mass pour over into the abyss. Then all suddenly ceased; the force of the glacier was spent. Where all had been mad confusion spent. and chaos there was rigid calm and death. It was a moment or two, as you may imagine, before I could recover myself to ask what was to be done. I cautiously climbed the couloir, and to my delight saw two of the party exwere the others? We looked around. What were those two things standing above the snow? Oh, terrible! They were the upstretched hands of another one. We went quickly to the rescue. We frantically cleared away the stiffening snow from the head. It was an Englishman. He was alive—just alive! but he had almost perished from suffocation, and now the snow from pressure was becoming hardest ice, and walling

Where were the other two? We gazed around, up and down. We looked down the couloir. There was nothing to be seen near couloir. There was nothing to be seen near or far. They had been swept over the preci-pice or were hid beneath the snow, and by this time embalmed in ice.

"Dig me out! I freeze to death!" cried the entombed one, whom we had for a terrible

Fortunately one of the other two had saved his ice-axe and I my bâton, and after great labour we succeeded in extricating the poor prisoner. But he had been so pressed as in a vice that for a time he had no use in his limbs, and felt as if he too had been changed to ice. However, as good fortune had it, I, being the porteur, had the wallet containing most of the provisions and wine, and after eating a little and drinking more we were all able to retrace our steps to the place for which we had started.

All had listened with great interest to this narration, and it was evident that another such story would also be welcome.

"A strange adventure happened to me last year," began Mr. Greystone's guide. "I was engaged by an Englishman for the Jung Frau, and our party-the gentleman, myself, and the porteur-started from the Concordia Hut on the Aletsch Glacier about three o'clock in the morning. Early as we were, however, another party of three, consisting of a German gentleman and his guides, had preceded us by about half an hour, and we followed on their track. Well was it for them that we did so, as you will hear. We had not been on the track more than two hours, sometimes in sight of them and sometimes out of sight as they worked upwards and downwards, when we thought we heard a faint, distant cry for help. Quickening our pace round a rocky prominence which had hid them from view, we saw at the bottom of a slope which ran down to broken ice, one of the guides engaged in a life-and-death struggle to keep himself from being pulled down by the rope into a great crevasse. But where were the other two? They were in that crevasse. As they had skirted the snowfield on that slope it had become an avalanche, as François has described—not so large as his, but large enough to sweep them helplessly down.

"The leading guide fell in first, but as he was falling the German gentleman, who was partly recovering himself, made a desperate but unavailing effort to stand firm on the brink. Failing to effect this because of the weight below, he contrived to fall with his alpenstock across the crevasse, and as by this time the second guide had been able to plant himself like a rock, tightening the rope with all his strength, they were able to support the suspended guide. Thus they were, one dangling below, another in a precarious position above him, and almost all the weight on the third one outside. How long could he endure the terrible strain? Every moment began to seem an age. He had scarcely any spare strength to shout. Oh, how he prayed! He felt a hundred times he must give He could have cut the rope and made himself safe, but he never thought of that. No! they must all perish or be saved together. That is the way of the good guide. How he rejoiced to see our party! It inspired him to hold on until we hastened up. I saw what must be done. My gentleman helped the straining gnide to hold on, and I preceded to go down into the crevasse, my porteur assisting with the rope. I got down from side to side. I east a rope about the body of the suspended one, who was almost senseless. Then I climbed back again to the top, and together the porteur and I pulled up the unfortunate man. Having thus rescued him, it was easy to release the German gentleman from his dangerous position. But as soon as they were safe they felt altogether unnerved, and it was some time before could speak or resolve what to do. When they had taken a little wine, however, they revived sufficiently to say they would return to the lut, and so we went on our way."
"Talking about faithful guides true till

death," said Mr. Greystone, "I was once at Zermatt when an English traveller and his guide set off to ascend the Rothorn by way of the Zmutt Glacier. They, too, came to an arete, which, as you know, boys, means the knife-like edge of two steep sides of a mountain. It was a bad arete, and very chancy work indeed, to creep along it, and the Englishman slipped and was bound for destraction, when, instantaneously, seeing his slip, the guide threw himself on the opposite side to balance him. It was a frightful thing to do, requiring the utmost nerve and courage, but he did it so as to succeed, and there they dangled, one on one side and the other on the other side, and cheered each other with the hope of rescue. Mercifully the rope held out until some one on the look-out below saw them and sent help to them, and so they were got off, but they had run the very greatest risk, and death had stared them in the face a hundred times.

"All guides are not like that one, how-er," said the fourth gentleman of the party. ever," said the fourth gentleman of the party. "Your mention of the Rothorn reminds me of an adventure I once had on it about four years ago. I resolved to attempt it, and engaged two well-recommended guides. we climbed the lower slopes we conversed, and got on to the topic of religion, and I found that one of the gnides was a Roman Catholic, and pions: but the other was an catholic, and plots: but the other was an infidel, who spoke scornfully of religion and of priests. Oh no! he did not believe there was a God. It was all the deceit of priests, who got money out of people by frightening them. There was no devil. That was a priest-tale too. He spoke very jauntily, and felt very sorry to have such a man with me. Well, we were successful in our ascent, and managed to reach the summit, which is a very pointed peak with a magnificent view. But we saw nothing. As we stood there the heavens, which had been growing darker in our ascent, looked frightfully big with storm all round. It was black, and yet lurid, over the Weisshorn, and seemed sweeping to-

"'Let us hasten,' I cried, 'to the ledge we passed about fifty feet lower down, and there

'This we did, and scarcely had we got there when the most tremendous thunderstorm which I had ever experienced, burst on us in mighty fury. The wonderful thing was the electricity. The wonderful thing was the electricity. The lightning flashed about us in great streaks. We cast our bâtons and axes away from us, but it enveloped us as in a garment. It covered my hands, it hung to my beard, whilst peal on peal of thunder banged and roared and rattled long and lond round us. It was appalling. I crouched down against the mountain to avoid the gusts of the storm. One of the guides, the pions one, did the same, quiet and resolute enough, but with pale anxious face. The other, the infidel one, was a sight to behold. In turn he was on his knees, or he was prostrate, utterly unmanned, evidently quite unconscious of what he said. Now he called on the God whom he didn't believe in, and then he implored the help of the devil.
'Bon diable!' he cried, and bellowed in abject terror. 'I will believe, deliver me, I am not fit to perish.'
"'Hold your peace,' I had to say, sternly,

'you blubbering coward,' for I was afraid of the effect he might produce on the other guide.

He was so unmanned, he trembled so with weakness, that when the storm wore off a little, and I said, Let us prepare to dego. He pleaded it would be better to wait until the fearful lightning was over.

"It was not until I had threatened to leave

him there, and when I got to Zermatt proclaim him for an arrant coward and unfaithful guide, that he was able to nerve himself for the descent, during the whole of which he

was of no real use.
"You may be sure that he was most crestfallen as we got on to safe ground. He

poured out his apologies with volubility, accounting for his terror by this and that

"But all that I could find it in my heart to reply was, 'Hadn't you better never sneer again at religion, and believe enough in God

to save you from such fear of the devil?'"

Thus passed the time in mountain-talk, until at length some one called attention to the fact that the sun was on its way to set. It was disappearing behind the Aignille du Goûter, which faced them across the glacier. As the mighty artist wrought his varied effects in the heavens, no dreams and no imagination could equal the coloured splendours which Bob and Harry then beheld. The first effect was as if everything had been dipped in gold. brilliance was soft, yet dazzling. as the sun sank down, the shadows formed in the valley below and began to ascend stage by stage, and as they ascended the golden light around them seemed to brighten by contrast with their approach. Then the advancing with their approach. Then the advancing shadows seemed to thicken into mist, and the mist became a rolling fleecy sea, in which the higher peaks began to look like purple islands in an ocean of gold. After a little while the brilliance in the sky grew more tender. melted into orange hues, which changed into crimson and into all the rainbow tints in turn, until the colours overhead cleared into deep unflecked blue, and eastward deepened into absolute violet, which seemed to pulse with intensity as if big with stars. These wondrous lights and colours had all the while been dyeing the snow around, and at length this part of the mighty spectacle flamed, as it were, on the snowy domes into rose-five splendour. Then, last of all, the whole panorama paled and dimmed as the shadows crept higher and higher, until at last the Dôme du Goûter grew rigid and corpse-like, and so gradually the pallor of death crept to the topmost summit of Mont Blanc.

"Let us make a fire here outside," said Bob, "as they used to do before the chalet

was built, and watch the moon.

The idea was voted a good one in comparison of the heated interior of the chalet, and soon there was a bright crackling blaze. It shot up merrily. It shed its ruddy glare over bronzed faces. It flickered and died in the dark corners of the rocks around. It threw the standing or sitting figures into bold The lads felt in the midst of romance.

By-and-by the lustrous stars came out. Then the moonlight, sweet and cold and silvery, came stealing down from beyond the Aignille du Midi along the track by which the sun had so gloriously withdrawn himself. But all the lower world was dark. Down at Chamouni there were the twinkling lights of the houses and hotels. Far above shone the fires of the great worlds of space. The boys' hearts were solemnised. Words seemed of no use; but when they retired to their beds their prayers were very real, for God seemed very near and very great and good.

At midnight they were to be roused to

finish the great ascent.

CHAPTER XI. -THE SUMMIT.

IT seemed impossible to sleep, and when the knock of the guides roused them it was as if they had only that instant closed their eyes. But what can take away the alertness of two such enthusiasts as our heroes at such a crisis of their adventures? Instantly they were in full possession of their wits and slipping into their clothes.

"You must eat something, whether or no," r. Greystone said firmly. "You will need Mr. Greystone said firmly.

The old woman who is the presiding genius of the chalet, and who dwells there the whole season—in a state of temper which is wonderful considering the exalted air she breathes, but especially also that it seems impossible for her ever to go to bed—the old woman placed coffee before the party, which proved most ronsing and refreshing. All was black ont-

side, and nothing was to be seen except the faint twinkle of the ice-crags of the vast The gleam of desert which stretched around. the moon was only faint far up on the heights, and it would be necessary to take lanterus to show the route along the wastes of snow.

The distance between the Grands Mulets and the Roches Rouges below the summit of Mont Blane is occupied by three gigantic steps rising one above the other. Each of them is several hundred feet high, and each terminates in a comparatively level plain of ice. The last of these platforms is called the Grand-Plateau, being by far the largest, and nearly three miles across. These gigantic stairs had therefore first to be surmounted by the midnight travellers walking in Indian file after the lanterns, of which there were three. How sharp was the air, how cold and keen the wind when it reached them in the more open places!

But for three hours and a half there was no danger. All that was required was a persevering treadmill grind up and up and np and still up, over the snow, which was hard and crisp. Then they reached the Grand-Platean. Here the first difficulty occurred. The guides bade halt, whilst they explored with the lanterns. A great crevasse stretched before their feet, forbidding entrance to the dark realms beyond. It was weird to see the lanterns going to and fro like will-o'-the-wisps on the edge of that dark chasm which stretched far away. At last, when all were feeling chill for want of movement, the leading guide, Auguste, was heard to cry out that he had found a passage, and presently all were once more gladly on the move. Having crossed, they had to make their way along a steep cliff of ice with the wide crevasse yawning darkly on the left. It did not add to their comfort when one of the lanterns slipped from the hand of the porteur who carried it, and sliding comet-like down the steep slope, fell into the dark jaws of the crevasse and was lost to sight.

As soon, however, as the danger was past and the plateau safely reached, wine, which proved most welcome, was served out to every one, for it was now intensely cold. Then once more the procession began to cross the plateau on which they were but specks moving on its dim vast whiteness.

Over the Dôme du Goûter a gleam of moonlight shone cold and silvery, and before them was a ghastly waste of snow. High up on was a glassity was to show. High up on the right was the summit of Mont Blanc apparently as far off as ever. On the left was the ice-gulf, in which perished many years ago the guides of Dr. Hamel. As the ghastly tale is whispered down the Indian file it begets, as may be imagined, a solemn feeling. one remembers that though the plateau is flat and easy, yet it is exposed to avalanches: because it was an avalanche which wrought that catastrophe. The danger therefore is still very real, and the guides are far more wary. It is here also where the deadly wind called "the tonrnente" blows most freely; which is a whirlwind of ice particles as fine as dust and as deadly as the sand of Sahara.

Here, then, for three-quarters of an hour the band progressed in almost absolute silence, under a feeling of danger; but the plateau once passed, and the Roches Rouges attained, apprehension ceased. No avalanches would harm them there; those vast, protecting rocks would surely turn the course of any which might fall.

It was singular, on turning round these Red Rocks," to come into full cold moon-"Red Rocks," to come into full cott moonlight, which in the east was already beginning the whole with the streaks of earliest dawn. The effect was strange, almost ghostly, in its weirdness. But it did not last long. Soon peak after peak rose out of the gloom of the world below, and the sight began to be magnificent. Day was dawning beneath the sky's black mass. A small speck of light would suddenly appear, and, lo! it was a peak or a dome; then there burst into flame another and another, and still another, on all the eastern horizon. Far away a silvery gleam showed a lake, whose bosom mirrored the It was Lake Geneva. And new-born light. so hills and valleys grew until the world below lay fully revealed in the glow of sunrise.

All this the party saw as they were skirting round the Roches Rouges, themselves being still in shade. Nor did they see the fires of Mont Blanc—the first, of course, to catch the glory of the sun. Mont Blanc at this point was out of sight.

But they must move ou; the cold is fear-l. The wind is blowing the dry ice-dust,

which cuts the face.

"Put on your veils, boys!" said Mr. Grey-

The great difficulty of the expedition was now before them. Past the Roches Rouges there interposes a lunge precipice of ice, slanting like the roof a house, and running up to a vast rock, from which depends a fringe of terrible icicles topped by a head of snow. Where it reaches below cannot be seen. To the excited imagination it seems to end no-

where, except in some devouring crevasse.

This slope had to be conquered. Now, guides, to the rescue! They vigorously ply the axe, but progress is very slow, and there is ample time whilst preparing for the next step to take in the vast scene around. hind was the Col du Géant. Far beyond was Monte Rosa, and nearer were the vast ice-fields of the Tacul Glacier, and the upper basins of the Mer de Glace. It takes cool heads, however, to enjoy this backward glance. Better, perhaps, keep your eyes on your feet or on the slope, and go self-denyingly along. Half an hour and there is safety again, and the party can once more breathe freely and gird up their resolution for the last and worst

difficulty of all which still remains.

This is the Mur de la Cote. As they stand and gaze up at its four or five hundred feet

of ice which seem almost to rise straight into the air, and as Mr. Greystone tells them with a smile that the route goes "up there, is, along its front upwards in a diagonal line, the two boys can scarcely believe him. It seems impossible. But no, he is not joking, only like a good general heartening and encouraging them at the crisis. There must be no giddiness, no trembling, no slip, for below there is only an immense chasm of ice into which the unlucky one would flash and drag with him all the rest, to fall hundreds of feet into some horrible crevasse.

The guides do not of course speak of this danger. They only warn to be very careful, to be very sure of the step, to move slowly, to wait to be safe from foot to foot. And so the formidable ascent begins after the leading guide and his ice-axe. First a hand pulling np, and then a foot catching the next prepared place, and then another hand thrust out, and then the foot going up. So our adventurers make progress, crawling upwards like flies across a window pane, as it were, from the bottom corner on the right to the higher corner on the left, one person moving, the next to him waiting. In half an hour this terrible place is conquered, and the party find themselves immediately beneath the final summit. Hurrah! the danger is over; and now only the "Calotte," or cap of the Giant, remains to be mounted.

"Hurrah, Bob! Hurrah!" cried Harry.
Up went the lads with fresh zest after the guide. Up followed Mr. Greystone and the gentleman with revived spirit; but though without any danger, yet the last mount was steep, and all were very much blown after the toilsome stumbling struggle on hands and knees, through which the top was reached. At length came a sudden stop and a wonderful level. It seems astonishing after all their constant looking up, but at last there is nothing

higher. They stand on the dome of Mont Blanc, more than 15,000 feet above the rest of the world.

Look at the boys. Their eyes blaze with triumph. It is done. They would like to shout, only it doesn't seem quite manly; but they can't resist shaking hands, and then rushing all round to take in every point of

What do they see? A mighty panorama full of immensity. All Switzerland seems to lie at their feet; yes, and Italy and France, as the guides call out the names of the peaks. There are the plains of Lombardy and there the mountains of Dauphiné and Jura. There is Lake Geneva, and there the Oberland peaks, and round to the right the Weisshorn and Matterhorn, and Monte Rosa, and all the Zermatt group.

What matters it that all is dwarfed because the scene is so vast, and that as a view it fails, and only seems a boundless expanse of undulating peaks and domes something like a raised geographical map? Have they not seen it? Have they not conquered Mont Blanc? In all the years to come they will be able to think and say that, and this is the one idea which fills their minds. They see themselves in Croston Grammar School. They are telling their wonderful story. They are imagining how everybody will stand amazed as they quietly say, "We did Mont Blane!"

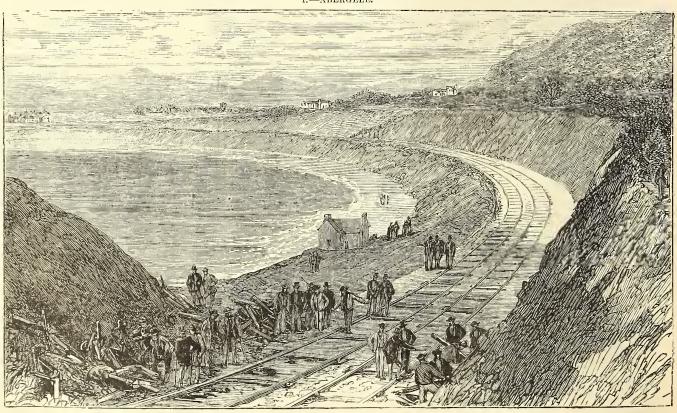
Happy, happy boys!
But look at their faces! They are almost black. Yes, and a little bloodshot streaks their eyes; and if they would listen the rarefied air is causing the blood to sing londly in their ears. It is a wonder they have not been sick and giddy and ill. Many are.

They do not heed it because the joy of their heart is louder as they feast their wandering eyes or look into each other's faces.

(To be concluded.)

GREAT RAILWAY ACCIDENTS.

L-ABERGELE.



HE most terrible railway accident we have one o'clock on a fine August afternoon. The yet had in this country occurred about site was that part of the North Wales line rails run nearest the sea. On the shore close

by is Pensarn; to the west is Llandulas station, the highest point of the line; to the east down a slight incline is Abergele station, from which the disaster received its name. Abergele itself is three quarters of a mile inland.

The train to which the accident happened was the Irish Mail, which leaves Euston at a quarter past seven in the morning, and which up to this fatal day, the 20th of August, 1868, had run regularly for eight years without the slightest breakdown. Nineteen years have passed since then, and the Irish Mail still leaves Euston at the same time, and runs over the same bit of line at the same time, and the passengers watching for the glimpses of the sea are hurried along, little thinking of the tragedy that then sent a thrill of horror through the land.

From Chester to Holyhead is eighty-five miles. The line coasts the estuary of the Dee, turns off westwards near the Point of Air, and then eoasts the Irish Sea to the Menai Straits, which it crosses by the famous tubular bridge, and thence runs on through Anglesey and Holy Island to Holyhead. The mail runs the full distance without a stop, leaving Chester about a quarter to twelve, and reaching Holyhead at ten minutes to two

On the day of the accident the train consisted of thirteen carriages when it reached Chester. There some additional carriages were put on in front, so that when it started it was made up of the gnard's van, a composite carriage, two first-class carriages, a luggage box with a second-class compartment, a post-office van, the travelling post-office, another post-office van, and then the carriages as they had come from London. In the first of these was the family of the then Lord Lieutenant of Ireland, the Duke of Abercorn. The Chester carriages filled up with passengers from that city; among them were Lord Farnham and his family, the Rev. Sir Richard Chinnery, Judge Berwick of the Irish Bankruptey Court, and others we need not mention. The engine which took on the train was a very powerful and heavy one, the Prince of Wales, and the tender was one of the largest.

The mail ran out of Chester about eight minutes late, and went on steadily enough through Rhyl and Abergele, and had just begun to mount the incline to Llandulas, when, as he ran round the curve, the driver saw, about twice the width of the railway in front of him, a train of trucks, the nearest to him laden with barrels of oil. Shouting to the stoker, "Joe! Jump off!" he leapt for

his life. As he touched the ground he was struck by a piece of the gnard's van and knocked down the embankment. Hurt in head and hand and knee, he got up and went back to the train.

A goods train had preceded the mail, and was on the top of the Llandulas incline, shunting into the sidings. It was a very long train, much longer than any one length of rails, and it was being, so to speak, packed away in detachments. A few trucks were left on the main line while the engine took the rest away. These trucks were supposed to have the breaks on, as usual, and at the rate the express was running, there was ample time for the goods engine to pick them up and shunt them out of danger. The break van had been taken off with the rest of the train, and then six trucks, the hind ones loaded with parathn oil, stood motionless in the bright sunshine, as innocent an example of loaded rolling stock as can be imagined. The engine ran out from the siding and backed to pick up the trucks. The operation is familiar to all. The engine slows as it reaches the truck, and as the buffers meet, the coupling is slipped over by the man in The engine, then, slowed as approached, and knocked against the trucks. The break had either slipped or never been put on! The trucks shot back along the line, and away they went down the incline at ever increasing speed to meet the mail, the man running after them in vain.

The shock was not as great as might be thought; but the heavy passenger engine smashed into the goods trucks, and rolled over, and the tender was shot right over it and fell in front. The weight of the engine and tender probably kept the carriages on the line, for not one left it. It was not the collision that was so remarkable, it was its consequences. For the oil barrels burst with the shock and rolled round the engine fire and under the carriages, and in a minute the fore part of the train was hidden in a curtain lvety black smoke, which cleared into a vivid sheet of flame. Nothing could be seen for a time of the carriages in front of the postoffice van; whether they were empty or not was not known, and the heat was so great that none dare approach them. The oil ran among the sleepers and the line was in a Not a cry was heard, not a sound except the roaring of the flames.

The driver ran to uncouple the London portion of the train, and the Marquis of Hamilton and other passengers jumped out to assist. As the fire reached the post-office the clerks threw out the letter bags, while

the leather connection and straps were cut away and the carriage backed out of danger. The glare of the flame had been seen at Abergele, and an engine came on to inquire. To it the train was attached and drawn away from the ruins.

The smoke was now clearing round the front part of the train, and giving place to flame, which rose in a sheet twenty feet high. As the inky fumes rolled away the people could see with horror that human forms were in the doomed carriages shrinking into ashes as the fire raged in and out of the holes where the windows were. For fifty yards the fire roared along the line; the gravel, saturated with the oil, seemed to burn like coal; the rails got white hot and bent as they lengthened. The telegraph poles were burnt like straws and the wires fell into the fire; the hedge burnt, the grass burnt, the line was barred with the flame and its fringe of pitchy fumes; the heat and stench were awfill. Approach was impossible; the carriages were left in the veil of fire. They dropped in together; the red-hot metal-work fell away; and all that remained was a layer of ashes. At eight o'clock that night the line was still ablaze.

The driver was hurt, and one of the postoffice clerks was slightly shaken. They were all that were injured. The rest were killed. These were said to number thirty-three,

These were said to number thirty-three, but it was never really known. Only the merest fragments remained among the ashes; and none could say whether some had been men or women. All that was left of some were cinders which together would not have made up the size of a loaf. Among the ashes were the remains of twenty-four watches. Lady Farnham had with her six thousand pounds' worth of jewellery, and the stones were picked up from among the baflast of the line, some blurred, some untouched by the flames, the diamonds having stood the fire best.

The men from the Llandulas limestone quarries came down to help, and a few people from the coast joined them, and with the passengers made great efforts to subdue the flames, but all was in vain. The case was hopeless, the fire had to be left to spend itself at its will.

In Abergele churchyard a huge grave was dug in which thirty-two coffins were laid side by side. The grave is railed in and bears an inscription, and those who are near the little Welsh town night do worse than give it a visit, and read the sole memorial of the most appalling calamity known in our English railway history.

KITE MESSENGERS.

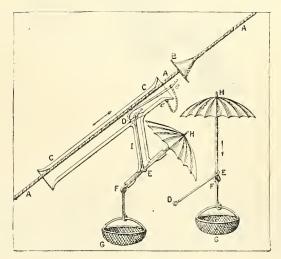


Fig. 1.

It is not advisable to send too many "messengers" up to kites. So long as the wind remains steady a few may be sent without risk, but if the wind fails the string thus weighted and worried is not easy of management, and the kite runs a good chance of coming to grief. And under any circumstances one messenger on the road at a time is quite enough. But the messenger may be of somewhat complicated build.

may be of somewhat complicated build.

The simplest messenger is a disk of paper with a hole in the centre for the string to run through. The paper is strung on the string and, providing no knots be in the way, glides easily aloft. Note paper is the best, but newspapers and pastry bags are often roughly torn to shape, and if the hole is pretty central they mount fairly well. The hole should not be too large, a quarter of an inch at the outside being quite enough, the string being untied from the winder for the messenger to be slipped on. Card does better than note paper; coloured paper crimped or folded does even better. If instead of the hole a light tube is used for the string to slip

through, the voyage is performed without jerk; and once the tube is brought into action, all sorts of fancy shapes can be experimented with. With a small frill round the tube a strawberry basket went skywards only a few days ago.

Herewith we give two coundicated forms of

Herewith we give two complicated forms of messenger that have been used with success.

which serves as the trigger. The fixing of HEF is clearly showu.

Before the kite is sent up a stop (B) is fixed close to the belly-band. The kite is then flown, and when the string is out to full length the messenger is slipped on. The basket is filled with fruit or flowers and contains a letter asking that the addressed post-

letting off fireworks at night, and dispatching paper parachutes with lights attached. In fact, for firework purposes, a steady kite is much more satisfactory than a balloon.

Some strange things have been sent up to kites. In 1844 Colladon dispatched from the earth a full-sized figure of a man which caused the diligence at Cologny to pull up in dis-



They show that kite-flying affords scope for card enclosed be sent back with particulars eonsiderable ingenuity. The first is an as to time and place of finding. The parachute arrangement for sending a basket aloft and is then fixed to the carrier by the hook D

eonsiderable ingenuity. The first is an asto time and place of finding. The parachute is then fixed to the carrier by the hook D (which is kept from falling away by the

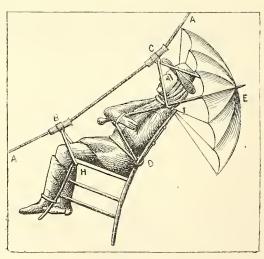


Fig. 3.

is the string, CCI is a light tube of brass, I being an arm down which the wire is run that holds the parachute. The parachute is a small umbrella fitted as shown in H E F G. a small unprena fitted as snown in H E F G. G is the basket, F is where the bar is broken and looped so that it may hang as desired, D E is a piece of wire with two loops passing up the tube. One loop clasps the handle of the parachute, the other holds the hook (D),

string e e), and away it goes. When it reaches the stop the end of the hook at e strikes against B, and D is driven out of the loop. The paraclute falls, and immediately resumes the upright position with E D slipped down to F; and gracefully supported on the wind, it floats away sometimes for several miles from the place of its launch. A similar arrangement of trigger has been used for

may! The postboys and passengers imagined that the philosopher had flown aloft on his chair much as witches are fabled to ride on broomsticks!

Here is Colladon's plan of how he built his mannikin. It needs little explanation. A feather pillow weighing about a pound was tied into shape and dressed up and placed on a light chair, much as guys are made on the 5th of November. The umbrella was strength-

a tight chair, much as guys are made on the 5th of November. The unibrella was strengthened with stays, and the man and chair were wired to a pair of tubes, so as to distribute the weight equally between them. So well did the arrangement work that the figure glided up the kite-string for two hundred yards without once stopping.

Some of Colladon's experiences in kite-flying are worth noting. When he was sixteen years old he read a paper before the Institute of France, showing that the electricity from frictional machines, Leyden jars, and the clouds, could deflect the magnetic needle in the same way as that from the galvanic battery, which was a discovery of considerable importance. In 1827 he went to Switzerland, and again sent his kites aloft in the cause of science. He found that in clear weather he had only to get his kites three hundred yards from the earth to obtain visible and tangible signs of positive electricity, and that the galvanometer showed the electricity to be of the same intensity on the propulsing as two thousand feet helow in the tricity, and that the galvanometer showed the electricity to be of the same intensity on the mountain as two thousand feet below in the plain. Then, to measure the electricity of the clouds in wet weather, he worked with linen kites of great size, having strings with silver wire run down them. The large kites proving unsteady and unwieldy, he adopted the Pocock system as described in our kite-carriage articles, Pocock's book, published in 1827, having then found its way to Paris. With the three kites he got the steadiness and portability he sought, and was limited as

to height only by his conducting string.

At Geneva his experiments were cut short At Geneva his experiments were cut short by the interference of a relation who was quite alarmed at electricity being brought from the clouds into his best back room. Every precaution had, however, been taken against accident. An iron bar had been driven into wet ground outside, and this bar

reached to window height, and was capped by a ball. The string was run on a glass winder, and at the end of the string, which was of silk, was a ball from which the sparks passed to the ball on the iron bar. The string was over twelve hundred feet long, and though there was no thunder heard in the sky, yet the sparks cracked out from ball to ball nearly a yard long, forming the seeming

zigzags familiar to us in storms. So pleased was Colladon that he called his friend to witness his success, with the result that the old gentleman was so alarmed as to insist on the experiment being at once discontinued.

"To make a plaything of the lightning flash Was tempting Providence, to him.'

GREAT MINING DISASTERS.

H .- BRIERLEY HILL.

The story of the Rhondda Valley reminds ns of the rescue at Brierley Hill in 1869. There the men were in the pit for five days and nights, and instead of being dug out were

The pit is about two miles from Stourbridge, in South Staffordshire, and belongs to the Earl of Dudley. About half-past two in the morning of the 19th of March the man in charge of one of the pumping engines noticed an immense column of smoke rising from the an inherense common of smoke Itsing from the inpresst shaft. On examination this appeared to come from the furnace at the bottom, which had been extinguished by a sudden inrish of water. The furnace was one of those so common in mine ventilation, its duty being to heat the air so that as it rose up the shaft overhead it would draw after it the foul air from the workings, which, passing over the fire, would in its turn be heated, and so rising increase the draught.

The man gave the alarm, and a descent of the pit showed that the water had risen six or eight feet above the entrance into the workings, and thus shut off from escape all those who were at work below. A few years before the colliery had been heavily flooded, and a very powerful pumping engine had been erected in case of another disaster. This engine, which was capable of throwing one hundred and sixty tons an hour, was at once set to work, and another engine about a quarter of a mile off was also brought into

action.

All that day the pumping went on, until about eight o'clock in the evening the bucket of the second pump broke. This caused a delay of three hours, and during that time the water, which had been about held at its level, considerably increased. It was evidently still flowing in. About one o'clock in the morning the gange showed that the inflow had been checked, for the water began slowly to fall. It was known, however, that the men below would have been at work some eighty yards from the workings of another pit, and although all hopes of saving them were given up, it was resolved to get to them as soon as possible, either by driving in from the adjoining works, or cutting a new gallery from the shaft over the old road, and then dropping down on to them.

This latter course was adopted, and the

new cutting over the roof of the old one Unfortunately it came on to rain on the Friday, and the water began to run a dead heat with the pumps, which had been reinforced by a portable engine, and were then capable of lifting two hundred and fifty tons per hour. When the rain stopped the pumps began to gain again, and by seven o'clock on Saturday the water was low enough in the shaft for an exploring party to

The cage was lowered to the level of the water, which was then just below the roof of the inset, and shouts were given, to which there was no answer. No ladder could reach far enough to be of use to land on, and as the choke damp became dangerous, the cage was drawn up without anything having been

The pumps were set going at full speed, and at ten o'clock at night another attempt

at rescue was made, but the choke-damp was then so bad as to put the lamp out. About two or three in the morning the watchers at the pit's mouth heard a faint shouting borne upwards to them, but the gas was then so bad that it would have been fatal to descend into it. The news that sounds had been heard soon spread, and in the early daylight the people in thousands came crowding round the shaft, and exclaiming that something onght to be done to save those below. But meanwhile the engineers had not been idle. Not only had the pumps been kept at constant work and slowly gained on the water, but as the water fell the means of ventilation improved, so that advantage could be taken of them to increase the draught and drive of them to increase the draught and drive the gas up. At half-past nine in the morn-ing it was thought safe to make another at-tempt, and Mr. Plant and his men were slowly lowered into the poisonous atmosphere, standing on layers of quicklime to neutralise

When they reached the level of the water they shouted, and the shout was answered. Again and again did they shout, and then, having made out the men's whereabouts, they returned, and built a raft and took it down with them on the top of the cage. They dropped it on to the water, and then embarking on it, paddled it with their hands into the dark tunnel, the water being then just low

enough to give them headway

Fourteen yards from their departure point they found three men sitting on a wall of coal just ont of reach of the water. These they just ont of reach of the water. These they took on board, and with them they paddled back to the cage, which was sent aloft. In an hour the raft, on a more lengthy cruise in this blackest of black seas, discovered two more men, and with these she paddled back

The story of the five was that at about midnight on the Tuesday, when they and another man were at work together, the choke-damp began to gather round them, and one of them, thinking for a moment, said that the water must have broken in. They ran for the bottom of the shaft, but a hundred yards away from it they met the water. They had to retreat before it, and made their way round into the higher roads. For fifteen hours the water continued to rise, and they continued to retreat. At last it began to subside, and they, keeping close to its edge, so as to take advantage of the puff of fresh air that came every time the pump bucket splashed into it, followed it back till it sank below the roof of the inlet and allowed their shouts to be heard above.

These men had been a hundred and eight hours without food, and though they had hours without tood, and though they had heard nothing of their companions below, were certain that some at least of them were alive. There were now six thousand people round the shaft, anxiously waiting for news from the explorers. Slowly fell the water before the unceasing throb of the pumps, and at every inch gained the draught of air improved, so that the danger from choke-damp had nearly vanished. At last, about three o'clock in the morning, the flood was low enough to let the raft pass down the hitherto sealed road, and two hundred yards

along it, close to the water level, were found four men and two boys. Backwards and forwards journeyed the raft on the subterranean pool, until all were saved and taken aloft in the cage.

There is something peculiarly impressive in this rescue from the grave in the small hours of the cold March morning, with the raft journeying to and fro in the coal cavern, and the cage rising up the gloomy, slimy shaft, silent but for the measured clank of the nntiring pumps, higher and higher into the chill morning air, with thousands waiting to welcome its freight as, one by one, the heavily wrapped figures are carried out into the star-

The men first saved, strangely enough, were the weakest. These last had been under-ground five days and five nights without food, and yet, being comparatively free from the choke-damp, had not suffered anything-like those in the higher road. They had even gone on working, knowing nothing of the pit having been flooded, and preparations had begun for their rescue before they knew they

were in danger.

On the Wednesday, when they knocked off work and were returning to the shaft, they found the water in their way, and, endeavouring in vain to get round it, decided to follow its edge, as their companions had done. During the first day they had a light, but when that failed them they told the time by feeling a watch that one of them had, and marked the advance and retreat of the flood by placing pieces of coal in it. As it re-treated they followed it. Every few hours they prayed together, and as the water slowly sank, and they got nearer and nearer their road to home, they heard the pumps going, and yard by yard followed the flood towards the rescuers they felt certain were on their way to them. Their hope rose as the water fell, and their hope was not in vain; and on the 28th of the month there was a service at Brierley Hill Church, to which they went with their sixteen rescuers, headed by Mr. Plant, and returned public thanks to Him on whom they had so fervently called to help

-sofficer

OUR PRIZE COMPETITIONS.

(NINTH SERIES.)

Jubilee Word Competition.

On page 527 of the present volume, at the end of an article on "Square Words, etc.," by Mr. H. M. Panll, we wrote thus: "This being Jubilee year, we shall be happy to give a prize of One Guinea to the reader of the B. O. P. who sends ns by June 21st the longest and best list of words formed from 'VICTORIA REGINA.'"

This, it will be noticed, is one of the very few competitions we have thrown open to all readers at all ages on equal terms; and, when one remembers the shortness of notice, the numbers who have taken part in it would seem to indicate that it was a very popular subject. No fewer than 1,968 Mss. were received, and the examination of these proved by no means a light task. Indeed, a graduate of the London University worked steadily on them, almost without intermission, for five hours daily for a month, and the editor then

had to examine those at the head of the list for the final result. As the last day for sending in was June 21st, this brought us on to nearly the end of July, and by August 3rd the result was sent to the printers, the B. O. P. having to go to press at least five weeks before the day of publication. Those impatient readers, therefore, who almost from the beginning of July kept writing to know the "cause of the needless delay in publishing the award," will now understand, perhaps, how groundless was their impatience and needless their letters. Of course it would have been possible, in a cursory, haphazard sort of way, to have adjudicated in far less time; but that would hardly have been fair to the contributors, and where every word in nearly 2,000 Mss. has to be examined and passed, a considerable time must of necessity be absorbed in the task. Indeed, in all our competitions the examination is most thorough, and hence readers may have full confidence that the prizes go to the most deserving.

In the present case Mss. came in from Toronto (21),

In the present case MSS. came in from Toronto (21), Ottawa, and Montreal; Heidelberg, Frankfort-on-the-Maine, and Darmstadt; Lausanne and Zurich; Brussels, Lishon, Constantinople, Alexandria, Austria, etc. It addition to the prize offered, we award certificates to the more meritorious competitors below the prize-winner, and to each name we attach figures showing the number of words submitted or passed.

Prize-One Guinea.

(579 words) FREDERICK C. SWALLOW, Mount House, Springwell, Gateshead-on-Tyne.

CERTIFICATES OF MERIT.

- (571) LAURENCE SPARKES, 93, Westmorland Street, Pimilico, London.
- (570) A. DEARLE, 14, Medburu Street, Oakley Square,
- (569) P. NEWTON, Jun., 115, Chorlton Road, Manchester. (565) FRANK BAILEY, 7, Penge Road, South Norwood.
- (562) JAMES MOFFATT, 18, Burnbank Gardens, Glasgow, Scotland.
- (560) $\begin{cases} \text{Frank Knowles}, 17, \text{ Grasmere Street, Little} \\ \text{Bolton, Lancashire.} \end{cases}$
- (560) FINLAY CHISHOLM, 1, Chisholm's Close, Muirton Street, Inverness.
- (553) WILFRED PADWICK, 5, Preston Street, Brighton,
- (551) J. L. WHITE, "Arnmore," Dean Park, Bourne-
- (549) WILFRED L. RANDELL, 12, St. Jude's Road, Plymouth.
- (547) J. W. COOPER, 37, Great Saffron Hill, Clerkenwell Road, E.C. (547) FLORENCE BENT, Stowe Hill, Bury St. Edmunds,
- Suffolk. (541) H. E. IBBS, 5, Rendlesham Road, Lower Clapton.
- (540) KATE E. SPENCE, Eastern Villa, Forest Hall, Newcastle-on-Tyne.
- W. SLATER, 1, Lancing Terrace, Mortlake, Surrev. S.W.
- (526) JOHN SCOTT, 24, Roseneath Terrace, Edinburgh. (523) G. F. Sea. F. DAVIDSON, White Rock, St. Leouards-on-
- (521) S. W. JOLLIFFE, Willett House, Bicknoller, Taunton.
- (520) T. J. ROBERTS, Bellevue House, Sebastopol, near Newport. (515) CHARLOTTE WARDE, 45, Kimpton Road, Camber-
- well Green, s.E. S. E. SWANN, 50, Hope Street, Thornhill, Masbro',
- (511) S. E. Sw. Yorks.
- (510) W. H. BELLAMY, 51, Lister Street, Hull.
- M. EDWARDS, Trym Cottage, Westbury-ou-(506) II. Trym, Bristol.

CHESS.

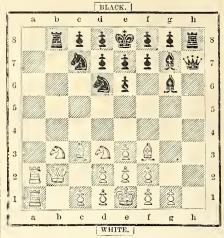
ANOTHER JUBILEE GAME.

Played on Jubilee Day.

The two players, the same as mentioned on page 606, agreed to play a so-called Pyramid Game, that is, to place the Kings on e 1 and e 8, and to place the eight Pawns around each in the shape of a pyramid. After these nine moves they proceeded to place the remaining officers as follows :-

WHITE.	BLACK.
10. Od 3	M h 8
11. N f 3	O e 7
12. M a 1	0 d 6
13. M a 2	L h 7
14. N c 3	Ng7
15. O b 3	M b 8
16. L b 2	Ng6
20. 11 0 2	Ngo

The board now presents the following appearance :-



Now the moving and taking began thus:-

17. Ng 7:	P g 7 :
18. O e 5	N e 4
19. Pd 3	N f 3:
20. Of 3:	P f 6
21. P c 4	P e 5
22. Le3	O e 6
23. M a 5	P e 4
24. Of d 2	· L h 1
25. Pg 3	M h 2
26. O e 4 :	O e 4:
27. Pe4:	L g 1
28. M f 5	O g 5
29. Od 2	P g 6
30. M f 4	O h 3
31. Mf3	Of2:
32. M a 5	O g 4
33. M g 5	P g 5:
34. Lg7	O f 6
0 •	

If he had played P d 6, there would have followed 35, L g 6: +, K d 7; 36, L f 5 +, K e 7; 37, L g 4:, etc.

35. Lg6:+	K f 8
36. M f 6:+	Pf6:
37. Lf6:+	K e 8
38. Lg6+	K e 7
39. Lg7 +	K d 6
40. P c 5 +	

and the game was a draw by perpetual check, for if K c 7, then 41, L e 5 +, K b 7; 42, L b 2 +, K c 6; 43, L f 6 +, etc.

These two games show a remarkable variety in the arrangement of the pieces, and some beautiful new problems can be constructed in accordance with the placements and movements of the Pawns. Indeed, some ancient problems gave the impulse for the invention of this kind of game in June, 1874, when the first game of a similar arrangement was played between H. F. L. Meyer and H. J. C. Andrews (see "Chess Guide," page 86). In 1874, however, the sixteen men were placed on the board all at once.

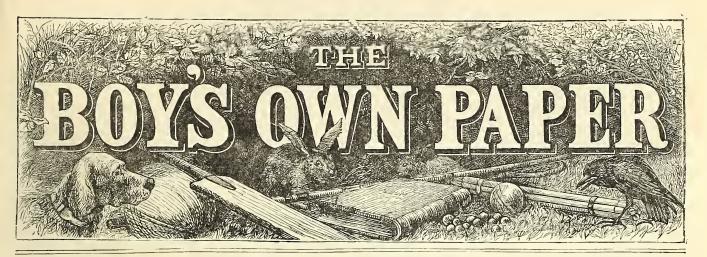
Correspondence.

BEE.—1. We know nothing of the society in question.
2. There is no difference in kind between the electricities, but the treatment should not be entered upon without the advice of a duly qualified practi-

- R. W. H.—The most useful trades for persons proceeding to the colonies are those of a carpenter or a blacksmith and mechanical engineer. a carpenter or a
- ROBUR.—Then you must go to New Zealand in an aeronef! You cannot go on board a man-of-war, and you object to go on a merehant or emigrant ship. How else would you go? The cheapest passage is by emigrant ship, and it costs thirteen guineas; by steamer, third class, costs sixteen guineas. The colony wants agricultural labourers, and a gardener might do well.
- Boy CHIRP.—The fourth volume started with No. 142. The back numbers of it are out of print, but the parts may be obtained.
- NIBLICK.—If you mix whiting and varnish together, and give the balls plenty of time to dry, you will find they will keep their colour. Or if you paint them with ordinary white paint, and then varnish them, you will get over the difficulty.
- J. C. S. OXLEY. There is a book by Davies on "Mounting Objects for the Microscope." You could get it from Baker and Son, opticians, Holborn,
- SIMON.—Grey wethers are the sarsen stones found on the chalk downs. Stonehenge is built of grey the ehal
- WHEELER.—The book is out of print in London. You might get it by an advertisement in "Exchange and Mart," which would cost you certainly less than a shilling.
- ANXIOUS IGNORANCE.—You might be allowed to work your way out as assistant-steward or general utility boy, but the work would be hard. Apply ou board a ship of the line, where you may not get engaged, but will be told whom to see and where to see him; or the juquiry clerk at the offices would put you right. right.
- TWICE BOUGHT.—Sold again! You should have called yourself, for to us and with us all numbers are the same price.
- DRUMMER.—The Army does not want drummer boys that are afraid to go out of the country, so you had better give up the idea. Drummers are generally chosen by the colonels, or come from the bands in schools; they do not come from the Military School at Sandhurst.
- at Sandhurst.
 F. C. Barrell.—1. The chief battles of the Peninsular War were Vimiera, Corunna, Talavera, Busaco, Fuentes d'Onor, Albuera, Ciudal Rodrigo, Badapioz, Salamanca, Vittoria, San Sebastian, Orthez, and Toulouse. 2. The chief battles of the Indian Mutiny were Cawnpore, Delhi, Lucknow, and Jhansi. 3. The plate of "Rank Marks of the Royal Navy" was in the part for February, 1884.
- ORGANIST.—The Albert Hall organ has five r ws of kcys—belonging to the choir, great solo, swell, and pedal organs—one hundred and thirty stops, and ten thousand pipes, the rauge being ten octaves.
- CAROLUS.—See our articles on the subject in former volumes. Read "The Cryptogram," by Jules Verne, in the fourth volume.
- N. WILSON.—You must know Greek. Full particulars of the examinations at Oxford are published at the beginning of Michaelmas term in the "Examination Statutes." Apply at the Clarendon Press Depository, 116, High Street, Oxford. J. N. Wilson,-You must know Greek.
- VERDANT GREEN. Any strong solution of salt, or chloride of lime, or carbolic acid, will kill weeds in gravel paths.
- chloride of lime, or carbolic acid, will kill weeds in gravel paths.

 T. SMITH.—A cuckoo cries, we suppose. There is no need to coin a verb to cuckoo. A magpie chatters. You may as well have a list and choose for yourself. Here is a fairly full one:—Apes gibber, asses bray, bees hum, beetles droue, bears growl, bitterns boom, blackbirds whistle, bullfinches pipe, bulls bellow, canaries sing, cats mew and purr, calves bleat, chaffinches chirp, chickens peèp, cocks crow, cows low or moo, crows caw, dogs bark, bay, howl, or yelp; doves coo, ducks quack, eagles scream, falcons chant, flies buzz, foxes balk and yelp, frogs croak, greese cackle, grasshoppers chirp, grouse drum, guinea-pigs squeak, gulls scream, hawks scream, hens cluck, horses neigh and whinney, hyenas laugh, jays chatter, lambs bleat, larks sing, linnets chuckle, lions roar, mice squeal, monkeys chatter, nightingales pipe aud warble, owls hoot and screech, parrots talk, peacocks scream, pigeons coo, pigs grunt, squeak, and squeal; plovers cry peewit, ravens croak, redstarts whistle, rooks caw, sheep baa or bleat, snakes hiss, sparrows chirrup, swallows twitter, swans cry, thrushes whistle, tigers growl, turkeys gobble, vultures scream, whitethroats chirr, wolves howl, and yellowammers call "a little bit of bread and na cheese."
- cheese."

 . H. S.—1. Clean the frame with a sponge and water, and when it is quite dry smoothen it with fine glasspaper; then give it a coat of water gold-size laid on with a camel-halr brush. When that is dry give it another coat. When that is dry dip a pencil into water aud with it lay on the gold-leaf. When the frame is covered give it a coat of clear parchment size. 2. To make butter-scotch put a pound of loaf-sugar into a pan with a teacupful of water. When the sugar is dissolved add four ounces of butter beaten up into cream, and then put the pan on the fire and stir away at the mixture till if a little be poured on to a buttered dish it will set. Just before the toffee is done add half a dozen drops of essence of lemon. Butter the dish or tin on which you pour the nixture, and when it cools it will come away without sticking.



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SATURDAY, SEPTEMBER 24, 1887.

Price One Penny.
[ALL RIGHTS RESERVED.]

THE HIDDEN TREASURE.

ANOTHER ADVENTURE BY THE SEA.

BY WILLIAM CROMPTON.

THE story I am about to relate is a triffing incident of my youth, which gave me somewhat valuable experience, and has served me in more important matters since.

I was an orphan, and though possessing the usual book-learning, utterly "at sea"

outside the walls of the academy; so perhaps it was an indiscreet thing for my uncle to allow me to go to the seaside by myself; but he, good soul, was engrossed in his City occupation, and unable to accompany me, so I was forwarded in the care of the guard of the train to a

landlady, a suite of whose "furnished apartments" had been occupied by my relative himself upon a former visit.

I was a quiet, impressionable boy, particularly unlike "Will Watch, the bold smuggler"—whose deeds of (illicit) prowess were so frequently rehearsed by



Our Village Smithy.

[Drawn for the B. O. P. by H. J. Walker.

the baritone singers of my time-save in one satisfactory point: my pockets were "well lined," as his, with cash, but obtained differently; his by tipping contraband cargoes upon the shore; mine by being "tipped" in more regular form by the dear old uncle aforesaid.

Well, I had run down from Clapham to Ramsgate, where I found that though "Britannia needs no bulwarks," she has pretty substantial ones in her chalk cliffs, that present as bold a front as needs be to any enemy of our tight little island.

Upon these natural ramparts it was my delight to walk early and late, inhaling the pure breezes wafted in shore-wards laden with ozone, every breath of which seemed to give added vitality to

my system.

It was rather solitary, I allow; but sometimes I had a book with me to read, and always there were strange and wondrous sights and sounds for me. The sky had ever-changing charms, the sea in every mood was glorious; and rolling in thunderous tones upon the beach or sinking to the whisper of an Æolian harp, always spoke of its infinite mysteries to my heart.

Still, as I say, I was solitary. Even grandeur and beauty are more thoroughly enjoyed when one's sensations are shared

by a kindred soul.

My solitude was broken by a person whose soul might not answer to that description, but who had peculiar charms of his own to make up for any sympathy he might lack.

The fact is, he was to my mind redolent of the ocean that I loved so much, and had, as he said, been a wayfarer upon it, "theer or theerabouts nigh forty

year."

He was my beau-ideal of a Jack Tar. A freshness as of the sea came with him; his very air was breezy! And a cheerful bonhomie breathed of the forecastle.

Under a straw hat, broad enough to have protected his face from the sun, he had yet a rich and ruddy complexion that did credit to nature—or to art.

He had as it were "taken stock" of me, as I of him, several days before he ventured to speak. I generally saw him upon the jetty, where he always touched his sombrero-like hat to me in most respectful fashion; afterwards, when we got upon speaking terms, I frequently met him upon the eliffs, where he descanted voluminously upon the marvels of the great deep, which seemed even to have affected his voice, for it had a deep and oleaginous roll about it, and he had all the sea phrases—more or less correct—in his vocabulary upon the tip of his tongue ready for service at a moment's notice. My new found friend, too, walked with a grand roll, begot, as I was fain to believe, by long acquaintance with the ocean, and he spoke about his "sea legs" as if he kept a second pair for land work.

Yes; if ever there was an Ancient Mariner it was this one, and he kept me enthralled in a spell as potent if not so ghastly as that which held the "Wedding guest" of Coleridge.

We had almost daily excursions to Pegwell Bay, where—I being "paymaster-general," as he graciously dubbed me we had tea and shrimps, and wandered by the sad sea waves in very joyous fashion. Entre nous, I noticed that he added something from a bottle—"Jamaica cream," he called it—to the cup that cheers, and on these oceasions would grow

over-garrulous; but I understood this to be a habit of the marine ereatures, a choice specimen of which I was then

studying so closely.

One day when an extra "allowance" had made his tongue run, as he said, "ten knots a hour," he put his forefinger to his nose with an air of extreme mystery, winked, and said:—"Young mister, I 'as a secret as I wishes to let you into. It's one as I thought to carry with me to the grave, and only to you would I a' told

I said, in reply, how much I felt flattered by such confidence, and awaited his revelation with much anxiety

wonder.

He took another draught from his favourite bottle—undiluted with tea this time—smacked, and then wiped, his lips,

and commenced:

"I'm a-going to take you a long way back to when I was a boy. I lived down here by Pegwell Bay, my old man being a eoastguardsman near, and there was another lad as was my bosom friend-Jack Gibbs was his name—and we mostly

ran about in couples.

School-boards, like many other newfangled jim-cracks, wasn't invented then, so us two had the run o' the place, wild like, and we knew every hole and corner about the coast, and lived like Robinson Crusoe and his man Friday amongst the sand-hills. We was allus upon the lookout for anything washed ashore from the sea as was worth hiding till we got a chance o' smuggling it away and getting rid of it in the town yonder for a little pocket money, which was rayther scarce, otherwise. Well, I know as it warn't strictly honest, but I never had no bringing-up that way, so that didn't trouble neither Jack nor me much.

"But I want to get to the real yarn as

I've got to spin, and here it is:

"One day when the sun was right above our heads a blistering and a frizzling me and my mate as we lay full length with our faces to the sand thinking upon nothing in particular and looking upon ditto right across the bright blue sea, as was as smooth as glass spreading away from beneath us till the blue waters met the blue sky and you couldn't tell t'other from which, all at once we sees a old woman hobbling along with a large parcel and a spade, and making towards a hole in the rocks after cautiously looking round as if she feared she was being watched. She was such a strange-looking party, and her ways was so suspicious like, as it made both me and Jack follow her movements purty sharply.

"She couldn't see us, of course, so, thinking it was all right, she goes straight for the cave and gets in out of our sight.

"Well, I tips Jack a wink, and we were down upon the beach in a twinkling and running helter-skelter to see what she was going to do with that ere spade and parcel:—may be it was a babby—a murdered one—as she was burying?"

At this point in the narrative my friend took a "big swig," as he said, and seemed to be very narrowly watching the effect his story, thus far told, had upon me. I was really becoming interested, and suppose I showed it, for, with a grunt of satisfaction, he resumed:

"We soon came up to the cave and peeped in, and there we saw the old dame as busy as you please digging a hole just

like a grave!
"This is a queer business and no mis-

take!' I whispers to Jack; and as the old party laid her parcel in the hole, and then began to fill it up, we crept back to

a hiding-place again.
"'Jack,' says I, 'it ain't often as we're
much good in the world, but we'll follow this ere job up or my name's not Joe Billings; you run and get a spade, come back and dig the body up, and I'll follow the old crone to see where she goes!'

"Well, she soon eame out and walked off towards Ramsgate quite briskly, just as if her mind was relieved like; and we follows at a respectful distance, as Jack had to go that way for the shovel.

"He hadn't to go far, for the old lady saved him the trouble, as she looked round shortly, and not seeing us as was hiding behind a hedge, she threw the spade she had carried so far into a field. This was secured by Jack, who at once returned to

dig.
"I kept on sneaking behind anything that would give me cover, till I ran the old fox down at a cottage just this side o' the town, and then I ran back to help

"When I got to the cave my pal had got all the sand out o' the hole—the grave, we called it—and was right down to the parcel as was wropped in Ameri-

can cloth; black, of course, as being more appropriate to its contents.

You may be sure as we two had a rare fit o' trembling like, for finding a body was different from picking up the usual waifs and strays o' the sea arter a storm; kegs o' this and boxes o' that. So we looked at each other a bit scared afore we ventured to cut the string as bound the parcel. But, when we did muster pluck, out dropped—what d'ye think?"

"A dead child?" I gasped.

"No, bless you! Nothing but a lot

o' papers all tied up with red tape as neat

as you please!

I felt relieved, for there was a big lump in my throat that seemed to choke me when I had looked for a tragic ending. Now I thought this prosaic, indeed!
"Nothing but papers?" I said.

haps the tone in which I spoke may have been slightly contemptuous, for my com-

panion hastened to explain.

"I ain't got to the end e' the yarn yet. You just wait. There were a mystery arter all! Now I s'pose as I needn't tell you, young mister, as I was no scholard, so I asked Jack what was in them ere dockyments; Jack, ye see, could read and write, and had the pull o'me so far. Afore he opened the parcel he looked quite scared; now he seemed puzzled.
"'What's to do, Jack?' says I.

"'I feels queer arter that ere fright,' says he, 'but I'll be all right soon. As for these things,' he says, looking strange and pointing to the papers, 'they ain't no use to any one only for waste paper, and what the old woman wanted to hide 'em

for I don't know!'
"Well, I tells you as I was upset both ways. First I thought as we'd dropped promiskus like-upon a rare case, and then when I was baulked o'that to find as the papers was only so much rubbish

was a blow indeed!

"'Well, what shall we do with the stuff?' I asks Jack.
"He brightened up, and, says he, 'I

knows a man as will give a good price for old paper if you likes to sell it.

"Now I was very fond o' Jack, but I wouldn't a' trusted him any further than he could a' been throwed; so I says, 'Jack,

what will you give me down on the nail for my share, then you can sell the stuff when and where you likes, and no ques-

tions axed !

"Jack he considers a bit and then says, 'Just wait till I tie this ere rubbish up again, and go down into the town with me and I'll borrow three shillings and give you that for it.'
"'Make it five, Jack,' says I, 'and it's a

bargain!'
"'You're a hard 'un,' says he, 'but as

you're a friend I'll say—Done!

"So we shook hands, and I thought as he was 'Done' to give five silver portraits of her most gracious Majesty (as I've sarved under, bless her!) for a lot o' dirty waste paper.
"Anyhow, we went into Ramsgate, and

he got the money and paid it to me.
"It was a windfall, I can tell you! not often had, so much coin o' the realm

in my pocket at one time!

"But though I got the money I lost my friend Jack. Somehow he disappeared quite suddenly from that very day, and I never saw him again until— But I'll come to that shortly.

"I often thought o' what had took my old pal, 'till one day as I was in a coffeeshop in the town, and heard one chap talking to another rayther loud.

"Now I ain't in the habit o' listeningmuch—but I couldn't help this time when he axed his mate:

"'Have you read that in the papers about the mad old gal up town?'
"'No,' says his friend, 'what is it?'

"'It's in this ere advertisement,' says the other. 'I'll read it!' And he did, which these is the very words:

"'£500 Reward. Stolen from a cave near Pegwell Bay a large number of Bra-zilian Bonds deposited there by Agnes Larkins, a woman of unsound mind, on or about the 2nd of last month.

Whoever will give such information as shall lead to the recovery of the stolen property will receive the above reward. Apply to Milliken & Turner, Solicitors, 99A, Bedford Row, London.

"And you gave the information, of course?" I said, eagerly,
"Not me! I was afeared o' the consequences to myself, don't ye see! Then perhaps they'd never a' believed me about Jack, so I should have got nothing out of it. No, I kept dark! But now after all these years I've got a chance o' making restitootion, and I means to do it —if you'll help me." —if you'll help me."

"How can I help you?" I asked in

wonder.

"Well it's a strange thing I 'as to tell you, and a arkward request I as to make. But it is this way !

He paused to chew the cud of meditation—and tobacco—for a moment, and then continued:

"Who d'ye think I met in Ramsgate

to-day?

"The mad woman, perhaps,"

"No; I met Jack, Jack Gibbs, as sure, as I sits 'ere!'

He emphasised this startling statement with a slap upon his thigh which sounded like the crack of a whip

"And have you had him arrested?"
I asked, excitedly.

"Arrested? No; that warn't my game! I means to go in for restitootion and not waste the whole lot o' money on law expenses!

I began to think better of my friend:

he had evidently a good heart under that rough exterior, and was even honest according to his lights.

"And what d'ye think he is?" he ran on rapidly; and before I could profess my inability to fathom that problem he gave the solution himself:

"Why he's a admiral o' the fleet!"

"A British admiral!" I exclaimed, incredulously. "Impossible! A British admiral a thief!"

"It's as true as I sits here," he said, earnestly, "and now you knows why I can't abear to expose him; I'm a thinking o' the honour o' the cloth!"

"Really," I thought, "this fellow is a

gentleman at heart!

"Now," I said to him, "how can I help

you in this matter?

"Help me? Why you can do everything, young mister! You can help me to get them ere papers back, and so make restitootion after all these years, for the admiral, Jack, tells me as he never dared part with them bonds, but lived on the interest as it came due, and that's how it was as he rose so rapid in the navy, cause he was rich. But now he means to give all up if I only go to London and see the thing through reg'lar and proper without no noise made about him in the matter 'cause of his position.' I've promised to do this, but—I've got no money to start with."

"Did not the admiral give you anything for your expenses?" I asked. "He is right."

is rich!"

"So he is," he replied, "but I forgot to ask him. You see I was so eager about the restitootion!"

"Of course," I said, "but why not go

to him now?

"He went off to London this morning. Had to attend Admiralty Board, so where can I find him now?"

"But he must have given you some address."

"Yes, Charing Cross Hotel to-morrow at two o'clock, that's all. And where am I to get the money from to meet him unless you can help me? There's not another friendly craft in sight as I can bear down upon and hail to say as I'm water-logged all for want of a few

pounds."

Now I felt rather taken back at this. I had only my pocket-money—uncle paid my landlady's bill—to rely upon, and that had dwindled sadly through our excursions and the incursions made upon it by teas and sundries for my new-found friend, so I told him frankly that I had very little cash with which to forward has laudable act of restitution, but what money there was could be at his service.

"All right, mate

(I began to think the ancient mariner was becoming too familiar!)

"All right, mate," he continued, "but perhaps you've got a few things as you

could raise money upon, eh?"

Raise money! I did not understand what he meant, but for all that a feeling of insecurity crept over me, and I looked at him curiously, no doubt.

"You begins to suspect me!" he said, "I see you does!" Then he added with an injured air: "Quite right! Always look on every man as a thief till you can prove he's honest. That's the way o' the world!" world!

"No, no! I don't mean that," I said, for he seemed hurt, "but I was thinking I had so little to assist you with."

The fact is I had become profoundly

interested and would gladly have aided the penitent man.

Anyhow, I explained my position in the matter of cash. I had some three or four sovereigns left, and he was welcome to the greater part of it. Of course to be refunded upon his return from

London. This he cheerfully promised.

As to "raising" any more money, I told him I had nothing I could sell. In fact the watch I wore and a diamond ringmy dead father's, given to me by my poor mother upon her death-bed—comprised the whole of my personal property save the somewhat limited wardrobe I had

with me.
"And so careful am I of that ring for the sake of both their memories, that I even dread to wear it for fear of accidents

"What? You don't mean to say as you leave that there valooable property in a lodging-house, do ye?" he asked, eagerly.

"I do, certainly!" I replied, "Why?" "'Cause it's onsafe, young mister. You take my tip and keep it about you, in your purse. Don't wear it, 'cause there's thieves in all these ere wateringplaces-land-sharks as is always on the look-out for their prey-and they might rob you. No, your purse is the safe place, no one can know about it there! Don't leave it in a lodging-house where folks is in and out every five minutes, and no one knows who's who or what kind o' characters is about.

I thanked him for his warning and we parted. He to prepare for his journey to town upon the morrow; I for bed, but not to sleep for a long time. The sur-prising revelations of the day kept me awake, and I had a joyous feeling about me that at least I had aided this man to do the best he could to escape from the degrading position into which both he and Jack—the admiral—had fallen.

Nay, when I slept it was but to dream a variation of the same subject, in which Joe Billings, late seaman R.N., and John Gibbs, rear-admiral, were court-martialed for theft and I was appearing for the defence, instructed by Messrs Millikin defence, instructed by Messrs Millikin and Turner of Bedford Row, upon H.M.S.

Pegwell Bay. Next day I roamed about Ramsgate in solitary state; there was nothing to excite me now. Only once I thought excite me now. Only once I thought— it must have been but fancy—that I caught a glimpse of the sombrero-like hat of my ancient mariner. I gave chase to this vision, which seemed to melt away in the vicinity of a public-house. However, the hat with its owner did appear the day following at our appointed tea and shrimp depôt at Pegwell.

His hat seemed somewhat dilapidated, and flopped about dismally; but its owner was in yet worse plight—blear-eyed, un-kempt, miserable!

"That London's a terrible place," he

said, perhaps imagining that I noticed his woe-begone appearance. "Tramping about there all day don't suit a man o' my years. It ain't plain sailing. There's so many craft in them waters that they

"Well, did you accomplish your mission?" I asked, with intense interest.

"In course I did! It's all in training:

the lawyer chaps put everything down in the log, and you'll see it with a fine flourish o' trumpets next week in the papers:—'Restituation o' valoable protrumpets next week in the perty by a retired naval seaman.

"It was all done in my name 'cause Jack -d'ye see—didn't want his'n mixed up in it. And I ain't to be prosecooted for my share in that ere transaction 'cause o' being the means o' getting the property restored.

"A very satisfactory ending," I said, gleefully! "And your expenses—"
"Oh, ah, yes! I forgot that ere pint. I 'as to return that money to you! That will be here to-morrow. They're going to send it down, and something handsome for me into the bargain!"
"Well, then, everything ends well," I

exclaimed.
"Yes," he said. Then, "By-the-bye, did you mind what I said about that ere

ring?"

"Oh, yes!" I replied. "Here it is in my purse quite safe!"

"My! What a beauty!" he cried as I showed him the diamond. "Worth a fifty-pun note any day! You put that ere gimerack away careful again for fear o' accidents. I don't like such things breeking about in public places. Do ye knocking about in public places. Do ye take?

I did not "take" at first, and said as much, but when he explained that "take" stood for "understand" I assented, and thanked him for his kindly advice. "Not

that there is much fear," I said; "I'm pretty sharp, I can tell you.'

He smiled at this little touch of vanity upon my part, and I blushed.

Soon afterwards we parted. He with many benedictions for my kindness, and promises to meet me next day to settle "that little loan affair!" In addition he was to make me a present out of the "something handsome" the London lawyers were to send him.

On retiring for the night I remembered the good sailor's advice about precautions in lodging-houses, so I put my hand in my pocket for my purse—I would place it under my pillow! A cold shiver ran through my frame—a profuse perspiration broke out upon my brow.

I hastily turned everything out of my pockets—a peg-top, knife, string, lolly-pops, a handkerchief, slate-pencil, indiarubber, pen-wiper, etc., etc., etc., but—no ring! no purse!

Then a flash—an inspiration—came across my brain with a speed to which electricity is unaccustomed, and I repeated Joe's words aloud, "Do you

take?"

Alas! I did not at the time. But now I recognised that he had "taken"—with-

out remorse or dread—my father's diamond ring, my last few coins, with that purse, besides the "borrowed" money for his journey, leaving me penni-

When I told my story at the police station the inspector was exceedingly polite, but as I described the sailor who had swindled me, a smile seemed to struggle with his official dignity as he

exclaimed:

"Look here, sir. I know who it is you mean now. It's Navy Joe, that's the name he goes by amongst us—nobody knows how many names he's got for the public! He's no sailor! He's spent more time in prison than anywhere else, and is only out now on a ticket of leave. He's a very tricky one is Joe—and I doubt if we'll be able to find him now that he has made such a good haul. However, we'll do our best and communicate with you.'

I thanked him, and retired; a sadder

but a wiser boy.

As for my "ancient mariner," I never heard of him again; he never came back! And since that time I have a wholesome horror of extemporised seaside "friendship," and fight particularly shy of longshore old salts!

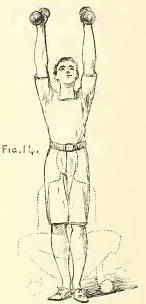
DUMBBELLS AND HOW TO USE THEM.

PART II.

For our fourth lesson we start as before, upright at attention we start as before, with the arms and legs as straight as you can until you deposit them at your toes. Then lift them again to armpits, aloft, and down

Fig.13.

right hand, keeping the lower limbs in posi-tion. Now lift the bell above the shoulder to the full extension of the arm, leaning strongly on the left knee and pressing the breast to the front during the ascent of the bell, the lower limbs to the knee, and the left arm forming a continuous line from foot



I upright at attention, ready for the thirteenth exercise. Bring the bells to the armpits, and then aloft together, and then keeping them together, bring them down in front

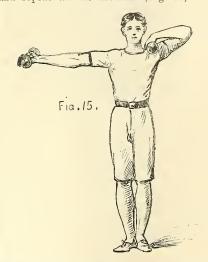
with a sweep to your toes, ten times in all, three motions in each.

Now for number fourteen. Lay the bells at the toes from aloft as in thirteen. Then make a full step to the rear with the left foot, the right foot following. Make a half turn to the right. Step to the front with the left foot the left foot the left foot. left foot, the left hand grasping the thighs just above the knee as the foot comes to the ground, the right arm extended in the line of the right leg. Next seize the bell with the

to shoulder. Lower the bell, replace it, and recover. Then upright again, step to the rear, right half turn, step to the front with the right foot, and go through the same motions exactly, only with the other hand. Complete this exercise ten times with each

In number fifteen lay the bells at the toes, then stoop and recover them to the hang, then charge out, as it were, with the right foot, taking a good long step, and throwing out

your arm to its full length as you do so (Fig. 9). Keep your left leg straight and your shoulders back, and double up your extended arm so as to bring the bell to the top of your shoulder. Move the bell backwards and forwards ten times, and at each return sink towards the ground, bending as you straighten your arm. Then move as in Fig. 17. Then recover, strike out with the left leg and arm, and repeat all the motions (Fig. 18). In



sixteen go through the same preliminaries, but instead of striking the hands straight out strike them aloft, sinking as the arm is extended (Fig. 10).

In the next group of exercises the bells are

swung.

For number seventeen (Fig. 12) swing the bells up from the hang to the horizontal, and then round till they meet in front, ten times together, letting them fall each time to the side—one "np," two "round," three "down." For number eighteen bring them to the front first, and then swing them round to the back and down. Keep the finger in front of the



CONTENTS OF VOLUME IX.—1886-7.

P.AGE	PAGE	PAGI
A	Alligators and Croeodiles 64	Australian Cricket Tour, The 429
Aberdeen, The Earl of 489	Alnwick Castle	Australian Sharks, Adventure with . 713
Abergele Accident, The 812	Alone 753, 771, 786, 806	Austria, Loss of the 332
	Alphabet of Health, The 96	Averages, Cricket 170
ADVENTURES:—	Alpine Climb, An 666, 687	Aviary, My . 424, 440, 459, 470, 486
Alpine Climb, An 666, 687	Anchovies	Aviary, The 13, 79, 144, 223, 304,
At the Morning Ela 37	Anglers, A Table for	367, 416, 495, 559, 623, 703, 767
Australian Sharks	Animals, How to sort the 780, 796	Aydon Manor House 150
Bell Rock Lighthouse, Life in the	Ants	zijdon Manor House
11, 30, 42, 54, 68	Apso, The Battle of 48	
Bush Life, A Bit of . 651, 661, 679	111/20, 110 buttle of	
Crnise in January, A	ARCHEOLOGY AND LEGEND:-	В
Elephant Adventure, An 502		Baits for Fish 640, 702
How Fred Huckster caught his	"Boy's Own Paper," The, and St. Paul's Cross 5, 27	Balaclava Charge, The 400
Whale 441		Balliol College 414
How I caught the Rat	Bristol 680	Balloons, Filling 432
Jeannette, In search of the 120, 139	Castles of England, The 52, 93, 110,	Bamborough
150, 167, 184, 199	155, 188, 205, 236, 247, 301, 348,	Bantams for Pleasure and Profit . 590
Land Tacks Abroad	364, 380, 427, 444, 475	Barbel Fishing
	Kings and Queens, Our 557	Barden Tower
Lassong the Grizzly 492	Lea, A Day by the 648	Bargain, My
Life in India 501	London at Sunrise 616	Baseball, and How to Play it . 555, 568
May Day Sail, A 801	Oxford and Cambridge Colleges . 414	Trescoan, and from to frag it . 355, 505
Monkey Hunt in the West In-	Sundials and their Mottoes 691	Basil Woollcombe, Midshipman,
dies, A	1	89, 105, 126, 135, 153, 169, 201,
Mont Blanc, To the Top of 741, 762,	Arctic Experiences 120, 139, 150, 167,	214, 230, 246, 266, 286, 298, 313,
772, 789, 810, 822	184, 199	326, 350, 361, 374, 398, 406, 422
Moose Hunting Extraordinary . 185	Area of the Circle, The 352	
Showman in the Woods, The 253	Army Pay and Promotion . 32, 576	Bat, Management of the 240
Terrible Night, A	Arthur, King	Bathing and Swimming 734
Toshie's Wooden Legs	Arundel Castle	Baths in London
A Prophing to Cl.	Assistant Clerks 48, 144	Be as thorough as you ean 157
Affectionate Cow, An	Asosan, The Crater of 269	Bear Catching 493
All Souls, Oxford 414	Atlantic Passage, The	Bear Hunt, A 184
Alliance, The, Cruise of 120, 139, 150,	Australia, Cricketers in 432	Bear Island
167, 184, 199	Australian Climates 784	Beasts in the East 316, 333

PAGE	$^{\circ}$ PAGE	PAGE
Beating and Reaching 528	_	Competitions:—
Bedouin Chief, A	Cadet Corps, A	Carving and Fretwork 47, 622
Bees, 223, 304, 368, 416, 495, 559, 623,	Caister 476	Drawing 47, 576
703, 767, 779	Caius College, Cambridge 415	Emblem
Beeston 427	Calendar, A Perpetual 763	Illuminating 47, 431, 447, 464,
Belvoir Castle	Calendar, A Perpetual	496, 783, 799
Berkeley	Cambassoos	Jubilee 496, 527, 765, 814
Bermuda Islands, The		Literary 496, 288
Bermuda Islands, The ±6	Cambridge, A Freshman's Life at 430,	Miletary
Berries, Our English	443, 459, 471, 490	Music
Berry Pomeroy 445	Cambridge Colleges, The 414, 639	Story Needing Words . 288, 725, 740
Bertie Stewart 407	Camera Obscura, The 206	Concertinas
Bhooteas, The 158	Canada 159, 544, 640	
Bible Trumpets, The 158	Canaries 144, 223, 304, 495	Concrete, To lay 48, 768
Bicycling 508, 524	Candlemas Day 400	Condor, The
Biddick, The Earl at 189	Canes, Varnishing 384	Conisborough 190
Bigods, The	Canvas for Painting 32	Conjuring 494
Bird Books	Carats fine	Copper Captain, The 330
Bird Books	Carisbrooke Castle	Copper Cleaning
Birds at Lighthouses 42	Carrieral Origin of the	Coral Cleaning 599
Birds, Management of 13, 79, 144,	Carnival, Origin of the 96	Corfe Castle 470
223, 304, 367, 424, 440, 459, 470,	Carp Fishing	Corineus and Gogmagog 200
486, 495, 559, 623, 703, 767	Carter the Cripple 637	
Birds, New Zealand 14	Carvados Indians, The 158	Cormoran the Giant 205
Birds, Paste for	Castle Acre 445	Cornish Castles
Bishop Lighthouse, The 638	Castle Rising 446	Cornish Miners
Black for Brass	Castles of England, The 52, 93, 110,	Correspondence 15, 32, 48, 64, 80,
Please Towart Through the	155, 188, 205, 236, 247, 301, 348,	
Black Forest, Through the 696	364, 380, 427, 444, 475	95, 112, 128, 144, 159, 176, 192,
Black Hole of Calcutta, The 48		208, 223, 239, 255, 272, 287, 304,
Black Japan	Catch-em-alive-oh's	320, 336, 352, 368, 384, 400, 416,
Blackboards, To Re-face 752	Cement for Aquarium 656, 688	432, 448, 464, 480, 496, 512, 528,
Blackeaps 460	Cement for Apparatus 64	544, 559, 576, 608, 623, 640, 655,
Blake, Âdmiral 427	Cement for Stone 64	672, 688, 704, 720, 736, 752, 768,
Bleak Fishing 702	Chaffinehes, Food for 112	784, 800, 810
Blencanshope 157	Chapelling	
Blenheim, The Trophies at 192	Charlie and Carlo 218	Correspondence, Rules for 759
Boar Shooting 502	Chat about Engine-driving, A	Coseguina, Eruption of 270
Doar Shooting	Chatzozerah, The	County Cricket Matches . 144, 446, 463
Boat, Ballasting a		Courses of a Ship, The 90
Boat-race at Sandilands, A . 473, 484	Chelsea Pensioners at Home 41	Courtney, John De 444
Boat-sailing 631, 662	Chemical Symbols, The 528	Crater Lake
Boat, The Twin	CHESS 31, 63, 87, 111, 119, 176, 191,	Crater Lake
Boats, Prices of 208	208, 222, 239, 287, 320, 352, 383,	Craters, Old
Bone Instruments 158	431, 447, 470, 495, 527, 543, 575,	Crayfish, The
Books, The Best Hundred 544	606, 655, 672, 704, 719, 751, 816	Creswell, The Ghost of 157
Boots, Waterproofing 400	Chess-board Problem, The 384, 592	CRICKET:
Botany, Books on	Chester 427	
Dotany, Dooks on	Chilblains, To Prevent 400	Australian Tour, The 429
Bottomless Pool, The		Averages, The 46
Bottreaux, The Legend of 237	Chillianwalla, The Battle of 724	County Matches 446, 463
Boy's Carnival, A 85	China Clippers, The 335	Epic of Cricket, The 603
Boys, Colonel John 445	Chinese or Knobbed Goose, The . 311	Family Elevens 35
	Christ Church, Oxford 414	Highest Score 463
"Boy's Own" Home of Rest, The	Christmas Day, Old 432	School Matches 478, 490
15, 78, 159, 222, 335, 432, 523,	Christmas in the Olden Times 204	
607, 656, 757	Chub Fishing 702	Cricket Match at Sandilands, Our . 579
"Pow's Own Poner" and Ct. D. P.	Chums, The	Cries of Animals 810
"Boy's Own Paper" and St. Paul's	Cipher Writing	Crocodiles and Alligators 64
Cross, The 5, 27		Cromwell at Bristol
Braidwood, James 745		
Bramber Castle 110	Civil Service Questions 192	
Bransil Ghost, The 478	Cleopatra's Needle 618	Cruise in January, A 235, 25e
Brasenose College 414	Crypped on sure Crowns (Two 50 04	Cruise of the Corsette, The . 660, 684
Brave Words	CLIPPER OF THE CLOUDS, THE 72, 84,	Cruise on the Coast of Devon . 726, 748
Brazing	101, 116, 132, 148, 164, 180, 196,	Cryptography · 389
Bream Fishing	212, 228, 244, 260, 276, 292, 308,	Cuyp the Painter 384
	324, 340, 356, 372, 388	Cycles, Japan for 128
	Clipper Races, The	Cycling Song 599
		Cyclone, A
British Pluck in the Arts of Peace . 638	Clippers, The	0,0000,000,000
Brotherly Love, The	Cloth, To Clean 656	
Brown Bess 400	Cloth, Waterproofing 688	D
Bruges	Coaching Adventure, A 302	D
Bucket Race	Coastguard Districts, The 64	Dace Fishing 709
Bugle Calls of the British Army 158,	Coin and Card Trick, A 700	Dart, A Day on the
175, 186	Coincidences 95	Dartmouth Castle 444
Bull, John	Colchester	Dawlish, and the Way There 66
		Dead Letter, A 574
		Deer Parks
Burgh, Hubert de	Colony, The Largest 592	2 001 2 001110 1
Buried Treasure . 633, 641, 668, 677,	Colours taken at Blenheim 192	2 0200, 20 021101
695, 709	Comet, The Tail of a 64	Degrees, University
Bush Life, A Bit of 651, 661, 679	Companies, The Shipping 343	Derwentwater, Lady 189

PAGE	PAGE	PAGE
70.0		
Developing Solution 208	Equation of Payments 768	Graves in Spitzbergen 167
Devonshire 618, 726, 748	Etching on Metal 192	Grayling 702
Dials and their Mottoes 691	Etna, Eruption of 270	Grease, To Remove 256
Dials and their motives	E The T	Control of Commercian 130
Diego Garcia 576	Europa, The Loss of the 42	Guarantee Companies 128
Diego Garcia	Everest, Mount 64	Gudgeon Fishing 702
D: 1 256	Examination Questions 192, 640	Guernsey Game, A 542
Displacement	Examination Questions 192, 040	Guernsey Game, A
Do not Stare	Exeter College, Oxford 414	Guildford Castle 247
Do To-day's Duty 781		Guinea-pig Companions, My . 488, 503
		Gun-barrels, To Brown and Clean 304, 768
DOG WITH A BAD NAME, A 1, 17,	F	Gun-parreis, 10 brown and Clean 504, 105
33, 49, 65, 81, 97, 113, 129, 145,		Gny, Earl of Warwick 349
	Facile Bicycle, The 509	Gymnastic Clubs
161, 177, 193, 209, 225, 241, 257,	Faculty Vaults 144	0.7111100000 01400
273, 289, 305, 321, 337, 353, 369,	Taculty vaults	
385, 401, 417, 433, 449, 465	Fair Play 284	
350, 401, 417, 430, 440, 400	Family Cricket Elevens 351	H
Dogs, Management of 13, 79, 144, 223,	Fancy Soaps 287	
100gs, Management of 15, 75, 141, 225,	rancy soaps	Hair Cloth
304, 368, 416, 495, 559, 623, 703, 767	Fanorona, The Malagasy Game of . 397	Hakluyt Headland 184
	Farmer Fairweather 345	II
Doings for the Month:-	Faction in Duna	Hammer, The
	Fashions in Dress	Hammerfest 140
	Fastolf, Sir John 476	Hammock Race 46
February	Fearful Apparition, A 283	
March	Town in Appendion, 11	Hannington, Bishop 491, 505, 518
	Fern Pressing 64	Hardicanute 650
April 416	Fight for the Standard, The 41	Harvest Moon, The 240
May 495	Fiji Islands, The 640	The Control of the co
June	D' 13 ' ' ' ' ' C ' ' ' ' ' ' ' ' ' ' ' ' '	Hats, Greaseproof 432
T)	Fire Extinguishing Solution	Haunted Pool, The 678
July 623	Fires, Great London 743	Have a Purpose
August 703	Fireworks 607	
Sentember 767	THEWORKS	Hawking, Books on 128
September	Fishing 38, 64, 480, 640, 671	Health Alphabet, The 96
October	Fishing, A Table of 702	Hedingham Castle 445
November		
	Fitzwarines, The 52	Henley Regatta
December	Fives 511	Heraldry
T) 1 D 4	Floating Paradox, A 700	II. ' NI 77 1 1 2 222
Donkey Race, A 46	Floating Taladox, A	Heroisin in New Zealand 222
Donnington Castle 445	Florida, Books on 48	Heus! incaute puer 304 Hidden Treasure, The 817
Doré, The Boyhood of 172	Flowers, Preserving 688	Hidden Treasure The \$17
Dore, the boyhood of	Elute The Ovicin of	TI'll 3 TO 1
Dover Castle 382	Flute, The, Origin of 239	Highland Regiments, The 448
Doves	Flute, Tutors for the 15	Hilo, The Divers of 60
Dragons	Fly Fishing 671	Hobby, The
Dragons		Hobby, The
Drawing Boards, To Fix Paper on . 720	For Sale 464	** **
Dreadnought Hospital Ship, The . 64	France, My Schooldays in 467	Holiday Rambles—
D'il d	French Losses in War 255	Black Forest, Through the 696
Drill Sergeant, Our 396		
Drummers, Choosing 15	Freshman's Life at Cambridge, A 430,	Bristol, A Walk about 680
Dudley, Sir Robert	443 459 471 400	Chelsea Hospital 41
Dudley, Sil Robert	Fretwork	
Dudley Castle 444	Fretwork 416, 784	Dart, A Day on the 4
Dumb-bells and Clubs 15, 536	Fruits, Our English 141	Dawlish, and the Way there 664
	Fulton's Steamer 297	Lea, A Day by the 648
Dumb-bells, and How to Use Them 808, 820	Putton's Steamer 291	Thea, It Day by the
Dunkerque	Fusees, The Composition of 256	Poole 29
Dunstanborough		Three Weeks in Devonshire 618
D d C d		Trip to Tangiers, A 761
Dunster Castle 427	G	Trip to Tangleis, it
		II
	Garden Management 13, 79, 144, 223,	Homeric Puzzle
E	304, 368, 416, 495, 559, 623, 703, 767	Homeward Bound 282
		Honest Harry 411
Earthquake Experiments 240	Garrison Sports 46	
Earthquakes, Number of 252	Garter, Order of the 92	Hoods, University
	Gelert, The Story of 240	Horse Jumping 48
Earth's Orbit, The 15		How a Debt of Gratitude was Paid . 462
Earwigs, The	Gentleman, Meaning of 320	How Fred Huckster caught his Whale 441
Ebonising Stain	Geology, Books on 32	
	German Paste 112	How I eaught the Rat 216
Eddystone Lighthouse, The 639	and the second s	How to hair a Violin Bow 510
Eel Fishing		How to sort the Animals 780, 796
Eels and their Ova	Ghostly Adventure, A 377, 393	
	Gilding on Glass	Hundred Books, The Best 544
Egg and Spoon Race 46		Hnrrah for August! 696
Egg-hunting 38	Gilt Frames, Repairing 816	Hurrah for Winter! 128
Eider Duck, The 139	Ginger Beer, How to Make 704	
	Glaciers	Hurstmoneeux
Electrical Information 32		Hymn Writers
Elephant Adventure, An 502	Glass, Painting and Gilding on . 15, 352	11.j mii 11 111015 200
	Glass, To Cut a Hole in 720	
Elephant Riding	Gloucester Castle 427	
Elfrida, The Story of 476		I
Emigrants, A Hint to 639	Goats, and How to Manage them 583, 604	Los Wiend
	Gogmagog and Corineus 206	Ice Fjord 167
Emu Shooting 679	Gold, Black 800	Iceland, Discovery of
Enamel, To Mix		Icelandic Women, The 120
The second secon	Gold, Quality of	
Engine Driving, A Chat about	Golden Verses, The 272	Incubators and Chicken Rearers . 550
Engineer Students 384		Index, A Vowel 544
Engineers, Marine	Good-bye	India, Governor-Generals of 256
Engineers The Persol	Goose, The Chinese 311	
Engineers, The Royal		India, Life in 501
Engineers' Wages 64	GORDON MEMORIAL FUND, 15, 78,	Indian Civil Service, The 48
English Water Carnival, An 727	159, 222, 335, 432, 523, 607, 656, 757	Indian Chalm
This of Cult to TELL	O : (NT I) -11	Indian Clubs 15, 536
Epic of Cricket, The 601	Grain of Wheat Problem, The . 384, 592	Indian Ink, Liquid 48
United A Wat 1 1		7 11 11 11 11 11 11
Epitaph, A Watchmaker's 672	Graph, A Cheap 640, 800	Indiarubber Solution 600
Epitaph, A Watchmaker's 672	Graph, A Cheap 640, 800	Indiarubber Solution

PAGE	PAGE	PAGI
INDOOR AMUSEMENTS:—	Lemon Cutting 46	Mortimer's Escape 309
Camera Obscura, The 206	Life in India	Moths, Books on
Conjuring 404	Life in India	Moths, A Hunt for 54
	Lightham Almotom 1	mouls, A Hunt for
Coin and Card Trick, A 700	Lighthonse Adventure, A 638	Moths, To Preserve from Mouldiness. 51
Dumb-bells 808, 820	Limbless Workers 637	Marana
Fanorona	Lincoln Castle 475	Music:—
78000000	Lines of Shipping 343	Be as Thorough as You Can 15'
Floating Paradox 790		Bugle Calls 158, 175, 18
Guessing Game, A 542	Linoleum Cleaning 80	Dugie Cans 100, 170, 100
Home-made Humming Top, A . 543	Lion Catching	Bully Tom 688
Jubilee, The 606	Lituns, The 158	Fair Play 28
Jublice, The	Linearl the Pottle off the	
Puzzle, Crocodile 656	Lizard, the Battle off the 48	Mussel Farm, The 75
Secret Writing, The Art of 382	Loach Fishing 702	Mutineers of the May Queen, The
Square Words 527	Lobster, The 760	71.4 7.1
Square moras.	London at Sunrise 616	714, 74
Ventriloquism 619	London at Sunrise	714, 74 My Leg Hit
7 1 M D	London Bridge, Tournament on . 475	My Studio amongst the Branches 671, 68
Ink, To Remove	London Fires	,
Insect Hunting 541	Longsword, Earl of Salisbury 428	
Insects, Numbers of	Tarian	N
Invasions of England, The 400	Lories 440	
Thyasions of England, The	Lubricant, A 64	Natal Colony 62
Invisible Ghost, An 20	Ludlow 302	Needle, To Float a 70
Islands that have risen 270	Lug Sail, The 631	Nemesis
Isle of Wight, The King of the 364	Lug San, The	None Description
isic of the initial time of the total	Lyme Siege 427	New Boy, The 21
	Lyonnesse, The Legend of 236	New York 8
J	2,002000, 200 20800000	New Zealand, Books on 68
		New Zealand Eruptions, The 21
Jack the Tinkeard 206	M	
Jacko's Mishap 699 James I. of Scotland		New Zealand Sketch, A 45
James I of Scotland	Magdalen College, Oxford 415	Nickel Plating 11
January Cruise, A 235, 254	Magnetising a Magnet 576	Nilghai Shooting 50
	Mahogany Stain 559	N: M: M: M: M:
Japan, Black 159	Manugany State	Nine Worthies, The 24
Japanning Cycles 128	Malagasy Game, A 397	Nonpareils 46
Java Sparrows 440, 470	Mallings, The 111	Norham Castle 9
	Mamhead Park 664	Norwich 30
Jeannette, In search of the 120, 139,		NOTWICH
150, 167, 184, 199	Mange, to Cure 656	NOTE BOOK, OUR:-
Jersey, The Conquest of 32	Mantis, The Praying 333	
	Map Mounting 15, 64	Anecdotes of Prince Albert's Boy-
Jet	Map Varnishing 32	hood 61
John, King		Art of being Examined 54
John Bull 592	"Marquis" of Torchester, The	De la De
Jorullo, The Eruption of 252	481, 499, 515, 531, 547, 572, 582,	Day by Day 61
Jordino, The Eruphon of 202		Deaf Mute's Beautiful Answer, A. 23
Jubilee, The 606	602, 611, 634, 643, 657, 673, 689,	Dog and the Earthquake, The . 56
Jump, A Horse's 48	707, 723, 739, 755	Dogs, Hard-working 47
Juruparis, The	Marsyas, The Fate of 239	Dogs, Hard-Working 47
ourapans, the		Family Elevens 35
	Maud, Queen 428, 648	Guessing Game, A New 54
K	May Day Sail, A 801	Hard-working Dogs 47
11	Medicine in New Zealand 712	II. II. G . 1 G/ 3 I'. 1 1'
Kangaroo Bieyele, The 509	Manual ann	How He Saved St. Michael's 59
Keble College, Oxford 415	Meerschaum	In the Fields in September 76
Keepsake, The	Memory Signal Code, Our 224	Lion Chloroformed 54
	Mercantile Marine Office, The 640	Morocco, The Emperor of, as a
Kenilworth	Merchant Navy, Our 334, 342	
Kennel, The 13, 79, 144, 223, 304, 368,		Cyclist 23
416, 495, 559, 623, 703, 767	Merchant Service, Books of the 15	Religion and our Public Schools . 73
7.7	Merchant Shipowners 343	Slave Parade, The 61
	Merchry, Specific Gravity of 64	Sledging across Siberia 47
Kingmaker, The	Merlin and Arthur 237	
Kings and Queens, Our 557		Stories of Snakes 64
Kingston, Mr. W. H. G 159	Merry Springtide 368	Talking Birds 55
Kite Messengers	Middleham	Veteran's Experience, A 56
Vaccoulation of the co	Military Music 158, 175, 186	
Knaresborough, The Siege of 190	Military Sports 46	Nottingham Castle 30
Knobbed Goose, The 311		Nowell, Dean 65
Kobelkoff the Cripple 637		
	Mineralogy, Books on 32	
Krakatoa, The Eruption of 251	Ziriicittiog, , , zoons on	
	Mines in Cornwall	0
m L	Mines in Cornwall 240	0
	Mines in Cornwall	Obstacle Race, An 4
Lambton Castle 189	Mines in Cornwall	Obstacle Race, An 4 Odo of Bayeux
T	Mines in Cornwall	Obstacle Race, An 4 Odo of Bayeux
Lancaster 475	Mines in Cornwall	Obstacle Race, An 4 Odo of Bayeux
Lancaster 475	Mines in Cornwall	Obstacle Race, An
Lancaster	Mines in Cornwall	Obstacle Race, An
Lancaster 475 Land Tacks Abroad	Mines in Cornwall	Obstacle Race, An
Lancaster.475Land Tacks Abroad22Lantern Slide Painting655Lassoing the Grizzly492	Mines in Cornwall	Obstacle Race, An 4 Odo of Bayeux 11 Oiling the Weathercock 65 Oils for Painting 25 Old Red 73 Oliphant, The 15
Lancaster.475Land Tacks Abroad22Lantern Slide Painting655Lassoing the Grizzly492	Mines in Cornwall	Obstacle Race, An
Lancaster.475Land Tacks Abroad.22Lantern Slide Painting.655Lassoing the Grizzly.492Last Day of the Holidays.71	Mines in Cornwall	Obstacle Race, An
Lancaster475Land Tacks Abroad22Lantern Slide Painting655Lassoing the Grizzly492Last Day of the Holidays71Last Words15	Mines in Cornwall	Obstacle Race, An
Lancaster475Land Tacks Abroad22Lantern Slide Painting655Lassoing the Grizzly492Last Day of the Holidays71Last Words15Latin Authors208	Mines in Cornwall	Obstacle Race, An 4 Odo of Bayeux 11 Oiling the Weathercock 65 Oils for Painting 25 Old Red 73 Oliphant, The 15 OPEN COLUMN, OUR:— Artificial Versifying 479, 63 B. O. P. Canoes 43
Lancaster475Land Tacks Abroad22Lantern Slide Painting655Lassoing the Grizzly492Last Day of the Holidays71Last Words15Latin Authors208Latin Union, The256	Mines in Cornwall	Obstacle Race, An
Lancaster475Land Tacks Abroad22Lantern Slide Painting655Lassoing the Grizzly492Last Day of the Holidays71Last Words15Latin Authors208Latin Union, The256	Mines in Cornwall	Obstacle Race, An 4 Odo of Bayeux 11 Oiling the Weathercock 65 Oils for Painting 25 Old Red 73 Oliphant, The 15 OPEN COLUMN, OUR:— Artificial Versifying 479, 63 B. O. P. Canoes 48 B. O. P. in Calcutta, The 63
Lancaster 475 Land Tacks Abroad 22 Lantern Slide Painting 655 Lassoing the Grizzly 492 Last Day of the Holidays 71 Last Words 15 Latin Authors 208 Latin Union, The 256 Latin Verse Making 319	Mines in Cornwall	Obstacle Race, An 4 Odo of Bayeux 11 Oiling the Weathercock 65 Oils for Painting 25 Old Red 73 Oliphant, The 15 OPEN COLUMN, OUR:— Artificial Versifying 479, 63 B. O. P. Canoes 48 B. O. P. in Calcutta, The 63 Boy, A, among the Maories 1
Lancaster 475 Land Tacks Abroad 22 Lantern Slide Painting 655 Lassoing the Grizzly 492 Last Day of the Holidays 71 Last Words 15 Latin Authors 208 Latin Union, The 256 Latin Verse Making 319 Launceston 237	Mines in Cornwall	Obstacle Race, An 4 Odo of Bayeux 11 Oiling the Weathercock 65 Oils for Painting 25 Old Red 73 Oliphant, The 15 OPEN COLUMN, OUR:— Artificial Versifying 479, 63 B. O. P. Canoes 48 B. O. P. in Calcutta, The 63 Boy, A, among the Maories 1 Boy's Own Gordon Memorial, The 51
Lancaster 475 Land Tacks Abroad 22 Lantern Slide Painting 655 Lassoing the Grizzly 492 Last Day of the Holidays 71 Last Words 15 Latin Authors 208 Latin Union, The 256 Latin Verse Making 319 Launceston 237 Lawn Tennis of the Present 777, 791	Mines in Cornwall	Obstacle Race, An 4 Odo of Bayeux 11 Oiling the Weathercock 65 Oils for Painting 25 Old Red 73 Oliphant, The 15 OPEN COLUMN, OUR:— Artificial Versifying 479, 63 B. O. P. Canoes 43 B. O. P. in Calcutta, The 63 Boy, A, among the Maories 1 Boy's Own Gordon Memorial, The 51 Cambridge Colleges 63
Lancaster 475 Land Tacks Abroad 22 Lantern Slide Painting 655 Lassoing the Grizzly 492 Last Day of the Holidays 71 Last Words 15 Latin Authors 208 Latin Union, The 256 Latin Verse Making 319 Launceston 237 Lawn Tennis of the Present 777, 791 Lea, A Day by the 648	Mines in Cornwall	Obstacle Race, An 4 Odo of Bayeux 11 Oiling the Weathercock 65 Oils for Painting 25 Old Red 73 Oliphant, The 15 OPEN COLUMN, OUR:— Artificial Versifying 479, 63 B. O. P. Canoes 48 B. O. P. in Calcutta, The 63 Boy, A, among the Maories 1 Boy's Own Gordon Memorial, The 51
Lancaster 475 Land Tacks Abroad 22 Lantern Slide Painting 655 Lassoing the Grizzly 492 Last Day of the Holidays 71 Last Words 15 Latin Authors 208 Latin Union, The 256 Latin Verse Making 319 Launceston 237 Lawn Tennis of the Present 777, 791 Lea, A Day by the 648 Lead Keels, Calculating 15	Mines in Cornwall	Obstacle Race, An 4 Odo of Bayeux 11 Oiling the Weathercock 65 Oils for Painting 25 Old Red 73 Oliphant, The 15 OPEN COLUMN, OUR:— Artificial Versifying 479, 63 B. O. P. Canoes 48 B. O. P. in Calcutta, The 63 Boy, A, among the Maories 1 Boy's Own Gordon Memorial, The 51 Cambridge Colleges 63 Chessboard Problem, The 59
Lancaster 475 Land Tacks Abroad 22 Lantern Slide Painting 655 Lassoing the Grizzly 492 Last Day of the Holidays 71 Last Words 15 Latin Authors 208 Latin Union, The 256 Latin Verse Making 319 Launceston 237 Lawn Tennis of the Present 777, 791	Mines in Cornwall	Obstacle Race, An 4 Odo of Bayeux 11 Oiling the Weathercock 65 Oils for Painting 25 Old Red 73 Oliphant, The 15 OPEN COLUMN, OUR:— Artificial Versifying 479, 63 B. O. P. Canoes 43 B. O. P. in Calcutta, The 63 Boy, A, among the Maories 1 Boy's Own Gordon Memorial, The 51 Cambridge Colleges 63

Contents.

PAGE	PAGE	PAGE
OPEN COLUMN, OUR—continued.	Pliny, Death of 270	Rat-eatching 216
Pater's Tricycle, The	Plucked in Spelling 203	Reaching and Beating 528
Peter van Musschenbroek's Nose . 238	Poet, The Patent Mechanical 319	Records of Passages 335, 343
Something Wrong 302	POETRY:	Records, Running 128
Scarlatina Jovs 823	Boy's Own Gordon Memorial, The . 512	RED-FINGERED CYRIL, 521, 533, 553,
Though Plural 'tis Singular 431	Bully and his Fag, The 581	569, 588, 594, 622
Tulit alter honores 238	Conceited Frederick 574	Redpolls 460
Oranges, Structure of 400	Cool Enjoyment	Regent's Park Ice Accident, The 576
Orient, The	Cycling Song	Rhondda Valley, The 793
Ornithology, Books on 384	Decisive Moment, The 39	Richard Ingeniator 93
Our All in All 405	Dick's Debts	Richmond Castle 190
Our English Fruits 141	Dolorous Ditty on a Doleful Theme 76	Rifle Cadets 192
Out with a Beating Stick 541	Don't give in	Ripon
OUTDOOR SPORTS AND PASTIMES :-	End, The	Rising of the Land, The 151
Anglers, A Table for 702	False Alarm, A 199	Roach Fishing
Bicycling 508, 524	Fields, In the, in September 766	Robinson Crusoe, The Author of . 794
Baseball, and How to Play it . 555, 568	Fives	Rochester
Bathing and Swimming 734	Gray Cavalier, The 392	Ropes, Calculating Strength of 208
Boat Sailing 631, 662, 717, 733	Greeting, A 91	Rossall School 384
Kite Messengers 813	How he saved St. Michael's 591	Rossall School
Lawn Tennis	Lays of School Life 366, 500, 552,	Rover Bicycle, The 524
Military Sports	573, 631, 718	Rowing Champions 48
Model Yachting 373, 391, 413	Leaving School for Canada 28	Rowing Clubs, Thames 784
Modern Fly-Fishing 671	Lifeboat, The 400	Rowing Courses 208
Racquets and Fives 511	Lines	Running Records, The 128
Oxford Colleges, The 414	New Master, The	Rust Removing 32, 80, 416
Oyster, The	New Volume, Our	
	Off and Away	S
P	Popular Delusion, A 10	Safety Bicycles 508, 524
Painting, Canvas for 32	Relicf of Hennebon, The 280	Sagas, The
Painting Oils 256	Sailor Sighs, The 624	Sailing Models 48
Painting on Glass 15	Scarlatina Joys 823	Sailors on Wheels
Painting on Tin	School Porter, The 12	Sails, A Ship's 272, 336
Palm Tree, The 192	Terrible Warning, A 119	St. Briavels
Papaw Tree, The 15	Though Plural 'tis Singular 431	St. George, The Legend of 93 St. Just, A Story of 237
Paper, Fireproof 688	Tiger, The	St. Martha's Chapel 249
Paper Making 64 Paper, To Remove Grease from 576	Tulit alter Honores	St. Michael's Mount 205
Parrakeets 425	You're not the First	St. Paul's Cathedral 616
Passages, The Quickest	Warden of the Cinque Ports, The . 478	St. Paul's School 384
Patch's History	What Cheer? What Cheer? 823	St. Piran
Patch's History 652 Patents, Fees for	Winter from Different Points of View 187	Salcombe Castle 444
Paul's Cross	Wishes 728	Salmon Fishing 702
Peace and War 673, 689	Pontefract 190	Salmon, Sizes of
Pebbles	Poole	Salt Cat
Pengerswick Castle 205	Porchester Castle 428	Salute, A Parting 676 Sanctuaries, The London 368
Penryn, The Surprise of 237	Porrex and Ferrex 336	Sandhurst, Examinations for 80
Per Capita and Per Stirpes	Poultry, Management of, 13, 79, 143,	Saved by a Squib 94
Perey, Origin of the Name	223, 303, 367, 416, 495, 559, 623,	Savings, What to do with 128
Perth, The Earl of 189	703, 767	Scar, The Story of a 6
Peterhouse	Powderham	Searborough 190
Pets:—	ties	School Cricket 478, 490
Aviary, My . 424, 440, 459, 470, 486	Protectors, The	Schooldays in France
Bantams, for Pleasure and Profit . 590	Pytheas, The Voyage of 236	Schooldays in Germany
Goats, and How to Manage Them 583, 604	Prime Ministers, Our 128	Schools, Large
Goose, The Chinese 311	Puzzles 304, 656	
Guinea-pig Companions 488, 503		SCIENCE:
Jacko's Mishap 699	Q	Edible Shellfish, Our
Patch's History	Quails, Californian 460	Entomology 541, 779 How to Sort the Animals 780, 796
Squirrels, and all about them	Queen Anne Farthings 64	Our English Fruits
Talking Birds	Queens and Kings, Our 557	Volcanoes and Volcanic Eruptions
Turkeys, Our		219, 251, 268
Phosphorus, Specific Gravity of . 64	R	Scamanship, Books on 32
Pigeons, Management of 13, 79, 144,	R.N.A.V. Headquarters, The 128	Seaning Song, The 620
223, 303, 367, 416, 495, 559, 623,	Rabbitry, The 13, 79, 144, 223, 304,	Secret Writing
703, 767	416, 495, 559, 623, 703, 767	Serpentine Boat House, The 373
Pike Fishing 702	Rabbits, Price of 304	Sharks 44
Piltick Fishing 38	Racquets and Fives 511	Sheep Farming in New Zealand . 713
Plants, To Preserve from Insects . 112	Railway Aecidents, Great 812	Shellac Bleaching 112
Platinum, Specific Gravity of 64	Railway Engines	Shellfish, Onr Edible 759, 766
Pleasure Navy, Our 26, 59, 78	Railways, Age of the 240	Sherbet

	PAGE	PAGE		PAGE
		STORIES—continued.	Tangiers, A Trip to	
Sherborne Castle		Cricket Match at Sandilands, Our . 579	Tanglers, A 1119 to	. 761
Shetlands, Adventure in the	37		Tar Paving	. 768
Ship Rigs	. 400	Dead Letter, A 574	Tarawera, The Legend of	. 219
Shipowners, Our	. 343	Dog With a Bad Name, A 1, 17, 33,	Tartar's Barometer, The	438, 452
		49, 65, 81, 97, 113, 129, 145, 161,	Tattershall Castle	. 189
Ships Lent from the Navy		177, 193, 209, 225, 241, 257, 273,	Tattoo, The	. 187
Ships, The Names of	343	289, 305, 321, 337, 353, 369, 385,	The control of the co	. 107
Shipwrecks of the World	409		Taunton Sieges	. 427
Shophar, The	158	401, 417, 433, 449, 465	Tay Bridge Accident, The	. 368
Short Sight, The Reason of	128	Ghostly Adventure, A 377, 393	Tea Ships, The	. 335
Short Sight, The Reason of	61	Haunted Pool, The 678	Tea-chest Lead	
Shot, The Making of	01	Hidden Treasure, The 817		
Showman in the Woods, The	253		Teignmouth	. 009
Shrimp, The	760	Homeward Bound 282	Telescopes, Management of .	. 144
Shunamite's House, The	28	Honest Harry 411	Telling the Story	. 392
Sigillaria, The	112	How a Debt of Gratitude was Paid 462	Teneli Fishing	. 703
Signal Code, A	994	Invisible Ghost, An 20	Terraces of New Zealand, The .	
Signal Code, A		" Marquis" of Torchester, The 481,	Terrible Night, A	
SILK-ROBED COW, The 9, 23, 36	3, 54,		Terrible regit, it	
DIER-110BED CO., THE C, 20, 00	70, 87, 102	499, 515, 531, 547, 572, 582, 602,	Thames, Books on the	
	10, 51, 102	611, 634, 643, 657, 673, 689, 707,	Thames on Fire, The	
Silvering Glass	576	723, 739, 755	Thames Tributaries, The	. 192
Silvering Instrument Scales	119	My Bargain 190, 197	Thermopylæ, The	
Silvering Institution beares	112	My Leg Hit	There's Ane Awantin'	. 456
Sinecures, Meaning of	240			
Sir Guy the Seeker	156	Mutineers of the May Queen . 714, 747	Thornbury, The Legend of	
Skins, Preserving	704	Oiling the Weathercock 653	Tibia, The	. 158
Slave Trade, The	400	Old Red	Tin Legend, The	
Sliding Gunter, The	631	Our Two Mossoos 62	Tin, Painting on	
Smelt Fishing	700	Red Fingered Cyril 521, 533, 553,	Tintagel Castle	
			Toffee How to Walso	700
Smithy, Our Village	817	569, 588, 594, 622	Toffee, How to Make	
Snails as Pets	764	Saint Valentine's Day. 346, 363, 379, 395	Tofig the Proud	. 648
Snake-catching	624	Saved by a Squib 94	Tom Saunders 497, 513, 529, 5	545
Soaps, Fancy	287	Silk-Robed Cow, The, 9, 23, 36, 54,	566, 586, 596, 613, 629, 644, 6	
Soldier Dogs	601	70, 87, 102		
Somer Dogs	021	Soldier's Story, A. 75, 86, 108, 125, 134	675, 693, 705, 721, 737, 757, 7	
Soldiers, Lead or Tin	768		788,	, 804, 823
Soldier's Life, A		Spanish Brigand, A 436	Tombs of our Kings, The	. 557
Soldier's Story, A	08, 125, 134	Story of a Sear, The 6	Tonnage Formula, The 159, 144,	
Somerton Castle	. 476	Strange Trip Abroad, A 561, 577,		
Something Wrong		598, 609, 625, 645	Tooley Street Fire, The	
bomeding wrong		Tale of a Donkey, The 122	Torksey	
Songs:—			Toshie's Wooden Legs	. 538
		Tartar's Barometer, The 438, 452	Tottenham	
Be as Thorough as You Can		There's Ane Awantin' 456	Tournament in the Peak, The .	
Bully Tom	685	Tom Saunders, 497, 513, 529, 545,		
Cycling Song		566, 586, 596, 613, 629, 644, 658,	Tracing Paper, To Make	400, 688
			Trade of a Country, The	. 119
Fair Play	284	675, 693, 705, 721, 737, 757, 782,	Trafalgar Square	. 618
Hardicanute		788, 804, 821	Training, Books on	. 688
Seaning Song	206	Uncle Jeremy's Household 233, 249,	Transparent Colours	65
		271, 279, 299, 318, 329	Transparent Colours	. 056
South Australia	640	Victims of Circumstances . 57, 345	Trinity Sunday	
Spanish Brigand, A	436		Trinity College, Cambridge .	416, 47
Speed of the Earth	256	Wibbleton's Great Experiment . 426	Triumph of Art, A	. 69
Sphere, Solidity of the .	. 15, 528	Strange Adventure with an Elephant 502	Trout Fishing	
			Trumpet, The	
	693	Strange Trip Abroad, A 561, 577, 598,		
Spitzbergen	151	609, 625, 645	Tuhoto the Maori	
Square Words	527	Stranger than Fiction . 491, 505, 518	Tunnels, The Great	
Squeaky Boots	240	Strawberry, The 48	Turkeys, Our	. 79
Squirrels and all about Them	539		Twin Boat, A	. 1
Stain for Mahogany	559	STUDIES FROM NATURE:—	Two Mossoos, Our	
Staining Pleals		Bison and Grizzlies 453	Tynewydd Pit	. 79
Staining Black	384	Dingoes and Emu 669	Tynonymu III	. 19.
Stains, To Remove	256			
Steamers, Noted	. 343, 736	Elephant and Rhinoceros Fight . 360	U	
Steamships, The Story of Our 2	96, 312, 332	Gemsbok and Jackals 549	Ulf of Deira	. 15
	,,	Gorilla, The		
STORIES:—		Gorilla and Leopard 124	Umbria, The	
Affectionate Cow, An .	769	Hippopotamus at Home, The 328	Uncle Jeremy's Household, 233,	
Alone 753, 7	71 796 906	1 1 1	271, 279, 299,	318, 32
Paul Wash - 1 377 1	71, 786, 806	On the March	Undergraduate V.C., An	
Basil Woollcombe, Midshipma	n 89,	Two to One 636	University College, Oxford .	
105, 126, 135, 153, 169, 201,	214,	Yaks 468	University Hoods	. 33
230, 246, 266, 286, 298, 313,	, 326,	G P A	University Hoods	. 55
350, 361, 374, 3		Summer Breeze, A 632		
Bertie Stuart	405	Sunbeam, The 26	V	
Boat Race of Carrella	407	Sundials and Their Mottoes 691		970 90
Boat Race at Sandilands, A	. 473, 484	Swimming and Bathing 734, 736	Valentine's Day, St 346, 363,	
Bottomless Pool, The .	746	Swordfish, The 45	Valke, Loss of the	
Buried Treasure 633, 641, 668,	, 677,		Varnish for Violins	. 75
	695, 709	Symbols of the Elements, The 528	Varnishing Cane	
Chums, The	96.1		Vaulting Record, The	
Clipper of the Clouds, The 7	0 04	T		
101 116 120 140 101	4, 54,		i i	
101, 116, 132, 148, 164, 180,	196,	Taking a Mean Advantage 412	Ventriloquism	
212, 228, 244, 260, 276, 292	, 308,	Tale of a Donkey, The 122	Verdigris, To Clean	
201 240 256 250 0	100 101 100	m 11: D: 1	Vones malring	916

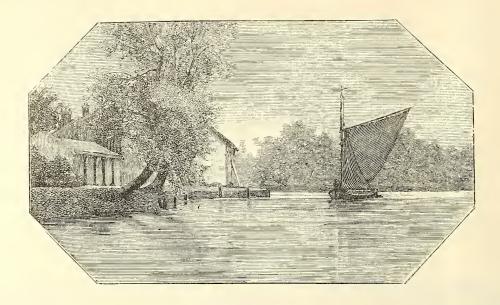
PAGE	PAGE	PAGE'
Vesuvians, Composition on 256	Walking-stick Varnishing 80	Whittington Castle 301
rosa ritalis, Composition on	Walmer Castle 478	Whydah Birds 470
1	Waltham Abbey 648	Wibbleton's Great Experiment 426
Technis of Circumstance	Waltheof's Conspiracy 302	Wild Berries, The
71010110 01035, 1120	T	Willesden Paper 176
Victoria Lesson Book, The		William of Wykeham 52
Village Smithy, Our	,	William the Lion 156
Violin Bow, How to Hair 510	Warwick Castle	Willows, The Weeping 192
Volcanoes and Volcanic Eruptions	Wasps, British	Windsor Castle
219, 251, 268	Watchmaker's Epitaph, A 672	THE THE COURTS
Volcano Machine, A	Waterproofing Boots 400	, ,
Volcanoes, Old 269	Waterproofing Cloth 688	Wood, To Bend 400
Volunteers, The First 688	Waterproofs that will not stick 304	Word, The Longest 80, 432
Vowel Index, A 544	Wave, The Earthquake 251	Worm of Lambton, The 189
Vulcano, The Factory in 252	Weights, Relative 256	Worthies, The Nine 240
(Intentio, The Tweeton)	Wellington's Death 478	
W	West Indies, Monkey Hunting in the 682	
	Whales, The	Y
Wadham College 415	Whale Boats	Yachting 15, 26, 59, 78, 192
Waits, The		Yankees, The 384
Wales, The Prince of	010	Yellowammers 460
Walk in the Woods, A 142		York, The City of 684
Walking Record, The 95	White Lady of Blenkinsopp, The . 157	Tork, The City of



	-	
CHRISTMAS NUMBER.	PA	GE
(Not included in Volume.)		
,		
FRONTISPIECE—After the Chris	tmas	
Dinner.		
Blizzard in Canada, A		17
Book of Games, A		24
Carols		29
Catching the Christmas Turkey.		11
Christmas in a Ditch		62
Christmas Masque, A		42
Curious Christmas Box, A		14
Curling		51
Cyprian Overbeck Wells		45
Dentist's Den, The		11
Dulce Domum (Words and Music)		36
Dutch Skating Grounds		35
Great Toboggan Jump, The .		7
Grottons, The		56
Grülies, The		59
Hannibal Trotter, the Hero .		3
Hel-ya-water		55
Home for Christmas		16
Industrious Apprentice, An		10
Merry Christmas, A		14
Merrymaking indeed		6

		PA	GE
Iy First Cruise in an Ice Boat			33
New Zealand Christmas, A			26
odd Half Hour, The			50
Pursued by Wolves			41
Ring of the Skates, The			6
aved!			17
cotland's Roaring Game .			51
nowballing Extraordinary			63
omething like a Holiday .			13
spell of the Snow Spirit, The			38
trange Disappearance of Lt. S	tever	ıs	19
Very Likely Story, A.			49
Vliy we Skate			6
Vinter			9
Vinter in Russia			32
VIIIIOI III XVXXXXXX			
SUMMER NUMBER			
(Not included in Volum	ne.)		
FRONTISPIECE—Something	Like	e a	
Holiday.	,		
•			
Bicycling Holiday in the Highl	ands		57
Black Monday			64
Bull Adventure. A			54

				PA	GE
Canoe Trip in Hudson	Bay	Dist	rict		17
Dutch Holiday, A					16
Entomologist's Summe	er Ho	oliday	-		39
Fisheries Dispute, A					9
Fishing in New Zeala	nd				61
Going Home .					40
Hanging in Mid-Air					55
Happy be thy Dreams	1				13
Holiday Discovery, A					3
How Very Funny!					3
In at the Death .					47
Jem and I				. •	6
Jubilee					4
Kept in					37
Lay of the Holidays,	A				30
Norfolk Broads, The					41
Norfolk Waters, On					42
Old Roof Tree, The					38
Pleasure and Duty					2
Run to Earth .					33
Smiths Abroad, The					56
Some Holiday Notes:	from	Norw	ay		31
Some Holiday Sports					15
Three Weeks' Holida					10
Victoria Spelling Boo					32
Water Polo .					53



ILLUSTRATIONS.

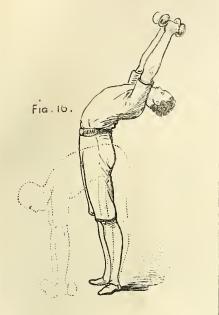
THE RIVAL STRATEGISTS	Frontispicce	THE ARMS OF OXFORD AND CAMBRIQGE
OUR PLEASURE NAVY	To face page 26	Colleges and Halls To face page 414
OUR ENGLISH WILD FRUITS AND BERRIES	,, 140	HOMEWARD BOUND
A RACE FOR LIFE	,, 184	THE KINGS AND QUEENS OF ENGLAND . ,, 557
WINTER IN THE HIGHLANDS	,, 241	"Close Quarters" at St. Vencent, 568
OUR MERCHANT NAVY — PAST AND PRE-		A SONG OF THE SEA , 640
SENT	,, 334	OUR EDIBLE SHELLFISH , 766
		WATCHED!

With many Hundred Smaller Illustrations.

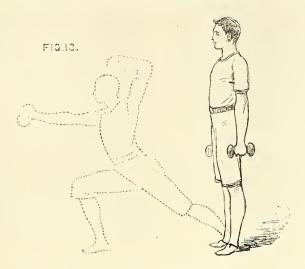


END OF INDEX TO VOL. IX.

handle all through this exercise; do not twist the bells as they pass to the rear. In number motions. Then with the right foot advanced go through the same five motions. The object motions. Then with the right foot advanced go through the same five motions. The object of all these exercises is, of course, to bring simultaneously and alternately thirty times



nineteen (Fig. 11) swing to the front, then to the back at extension, then from extension swing overhead till the bells meet, then bring



into play as many museles as possible, giving each a turn in time. Whenever possible an exercise should always be done from the three positions-heels together, left foot forward, right foot forward.

Now for our last group. Ready for number twenty (Fig. 13.). Stand erect with bells at

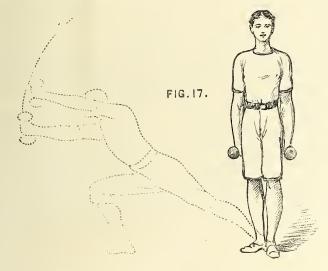
as before, then turn your body to the right and do likewise. In twenty-one bring the bells to the clest, twist the body and strike out straight with them together and separately, first twisting to the left, then the right. In twenty-two (Fig. 14) raise the bells overhead and sink to the floor, and with heaven the star forth. with knees bent go through the ten first strokes. Then rise and down again and do the ten strokes with the left; then up and down again for the ten with the right.

In twenty-three, as the body sinks the bells are brought to the chest and the arms are extended, moving round to the front horizontally, and brought to the chest again much as in the act of rowing. This is a very tiring exercise, and at first makes itself felt in every exercise, and at first makes itself left in every joint in the body: ten times together is quite enough for the first day's work. Twenty-four (Fig. 16) is an easy exercise, but a valuable one. Swing the bells aloft, and then bend backwards, letting the arms slowly open and extend backwards towards the ground; then bring them back aloft from behind without learning them they be along in front and lay bending them, then bend in front, and lay the bells at your toes.

There are other exercises, but they are all,

like many we have given, mere combinations easily invented by the proficient. The examples herein are quite enough to bring out the full powers of the dumbbell as a gymnastic appliance, and a steady practice of them for ten minutes a day after the morning tub, will not only set the student well up and shape him properly, but add an inch or so to his girth if not to his stature.

(THE END.)



them down to the chest and so to the hang, live motions in all. Then step forward with the left foot and go through the same five twist your body round to the left as far as it

TOM SAUNDERS:

HIS SHIPWRECK AND WANDERINGS IN TROPICAL AFRICA.

BY COMMANDER V. LOVETT CAMERON, R.N., C.B., D.C.L.,

Author of "Across Africa," etc., etc.

CHAPTER XXI.

THE forces he took with him were apparently ample to destroy the whole country, and certainly they never spared friend or foe, but robbed and plundered all they came across with scrupulous impartiality; but many struggled away and exactly solve for all they can be for all they can be struggled away and the scrupulous impartiality; but many struggled away and the solve for all the solve f gled away, and an outbreak of small-pox taking place among them, many more died, and the rebels hearing of this, gathered up courage to resist, and on much to make the remainder desirous of

several occasions their men penetrated close to the quarters of the Kazembe, and put him in such a deadly fear that he pretended that he was willing to enter into negotiations with them, and induced many of their leaders to come to his camp, where he treacherously murdered them.

This, as might be expected, did not do

peace, and several fights took place. and my men, though constantly urged by the Kazembe to fight, refused to do so except in self-defence; and in one of these skirmishes when we were smartly attacked whilst following some little distance in the rear of the Kazembe's main body, we captured three men. Our prisoners seemed to expect nothing but instant death, and were much astonished when, instead of killing them, I asked them if they would take a message to their countrymen to say that if they would refrain from attacking our party we would do them no harm. They seemed perfectly astonished, and asked what I was doing in the Kazembe's camp. When I told them that my only desire was to get away from him, and to get to the country of the other white men, they said that if I would leave the Kazembe their friends would welcome me and help me on my journey, and that not far from where we were then were people who traded regularly with white men living on a big river.

This offer was too good to be refused, and I made arrangements with them to leave the Kazembe's company on the first opportunity. Nor was this long in offering itself, for the next day I went and saw him, and said that I had been long with him, and that though hitherto I had not fought on his side, now that I found his enemies also attacked me I would fight, and asked him permission to lead an attack against a body of the rebels, said to be a day's journey to the eastward, and proposed that he should give me fifty of his guards to go with me.

He said he was glad to hear I had at last agreed to fight, but that he could spare no one to go. I said that my party was too small to go alone, when he said he believed I did not want to fight, but was afraid. As my greatest wish was to get away alone, I pretended to reluctantly yield; and when, as we were starting, he proposed to send one of his chiefs and a hundred men, I refused, saying that he had said I was afraid, and I was determined now to show him that a white man had as much courage as any of his neonle

My prisoners were sent on to apprise their friends of my approach, and that same evening I was welcomed by our late encmics, who said that, in return for my having spared the lives of those I had captured, they would do anything that I desired. My only request was for guides and provisions, to enable me to travel as fast as possible, and these were at once given me, and in a fortnight more, after skirting by the marshy borders of a great lake called Bangweolo, I came into the country of Ubisa, where I found the people were, many of them, in the habit of travelling far and wide in search of

trade, and that even then there was a party ready to set out for a trading station of some white men, distant about a partly in many

month's journey.

With these people I soon entered into arrangements, and after crossing a large range of mountains, and coming upon rivers running to the southwards, I found on the banks of one of these the station of which they spoke, and which belonged to a creole of Tété called Souza, by whom I was most warmly welcomed, and who, when he heard my story, told me that only once before had such a marvellous journey been performed, and that was when, some thirty years before, two pombeiros from Kassanci, near Loanda, had succeeded in reaching Tété.

At Souza's station I and my men were able to dress ourselves once more with some show of decency, and after rewarding our Wabisa guides for having brought us to the white men, we obtained other guides from Souza, and in another ten days we reached the banks of the Zambesi, where we obtained canoes, and in three days more came to Tété. Here we found what, after my experience of the wilds of Africa, seemed luxury and civilisation, and all the European inhabitants were most kind and hospitable, and I enjoyed most thoroughly sleeping in a properly built house in a regular bed with sheets.

The Governor, a captain in the Portuguese army, when he heard my story of the wealth of Katanga, wished me to proceed at once to Mozambique to tell the governor of the province of our discovery of gold, and ten days after my arrival a large barge was placed at my disposal, in which I descended the river to Kilimani, whence a trading schooner took us to Mozambique. Here also I was most kindly treated, and very handsome offers were made to me to induce me to lead a party to the gold mines of Katanga, but both I and my men had had enough of the dangers of African travel; and soon after my arrival, an English merchant ship putting in, I arranged with her captain to give me a passage to the Cape of Good Hope, to which place my faithful followers accompanied me.

When I arrived at Cape Town I had a most unwelcome surprise, for I found that, as sole survivor of the Pilot, I would have to be tried by court-martial; but I

soon found that this was only a form, and as soon as sufficient ships had assembled for a court to be properly constituted, I was, after relating my narrative, acquitted of having in any way contributed to her loss, and told that I was a free man.

The gold I had with me I exchanged for drafts on the bank of South Africa, and after amply rewarding my men, for whom I chartered a schooner to convey them to Benguella, I divided the remainder into five portions, one of which I sent to Senhor Ferreira and two to Senhor Gonçalves, one being for himself, and one on account of Guilhermé, whose sad loss I shall mourn all the days of my life, while the remaining one I retained for myself.

As soon as I had done this I took a passage to England in a honieward-bound Indiaman, and arrived safely at Spithead after a safe and uneventful voyage. I at once landed and went to London, where I found that the crystals which I had brought from Katanga were indeed diamonds, and I was able to dispose of them for a very large sum. The proceeds I divided as I had done the gold, and found that my share rendered me a very rich man.

The sale of the diamonds, and remitting their shares to Senhors Gonçalves and Ferreira, detained me for some time in London, but as soon as it was finished I went to my father's home, where I was welcomed as one that had risen from the dead.

I found that he was in great difficulties, as he had had a succession of bad seasons, and had got heavily into debt, and was afraid that he should have to leave the farm where both he and his father had been born.

I soon put everything straight for him, and the estate of which his farm was a part being for sale, I bought it, and now he only farms for amusement, while I, though I often find it hard, try to qualify myself for the position of a country gentleman. I often now, in my comfortable and well-furnished house, think of the contrast between it and some of my African resting-places, and my heart is full of gratitude to the Ahnighty for having preserved me amid so many and great perils.

(THE END.)

TO THE TOP OF MONT BLANC:

OR, HOW TWO BOYS DID IT.

BY THE REV. WALTER SENIOR, M.A.

XII.-TO THE LOWER WORLD AGAIN.

"Come, boys, you must have something to eat, or you will be faint as you descend."

scend."

The guides nearly all the time had been as busy unpacking the provisions which they had brought with them from the Grands Mulets as if they lived on the summit and felt none of the fatigue of climbing to it. They had set out mutton and fowl, bread and butter, the butter filling a scooped-out loaf, hardboiled eggs, and a piece of cheese, raisins, and chocolate, and now they dispensed them. Don't look too closely at the fingers which hand round the portions. Look only into the smiling faces, and eat and be thankful.

Wine, however, is more in request than solids. The exhaustion of the ascent and the loss of moisture which follow on long-sustained effort, even in the regions of ice and snow, crave for the speedy relief which wine stimulates.

But fancy, boys, getting breakfast with Mont Blanc for your table, and his snow for a tablecloth! Somehow, in spite of hunger, it scarcely seems right to leave bones and egg-shells, and crumbs on such a spot. What will the soaring eagle think as he comes to perch there?

In half an hour all are quite ready to commence the descent. One gets enough

of existence on such heights very soon, and it is wonderful how rapidly weary once grow quite refreshed and renewed in energy by the strong fine air of a conquered summit.

Except the Mnr de la Cote, the way down will be easy and delightful. It is so much easier to go down than up in this world. And also now the inspiration of success will lighten every step. The great attempt has been made, and now they carry victory resting as it were upon their bâtons.

Yes, their downward course is delightful, so soon as they have passed the Mur's steep side. Glissades are now! the order of the march. A glissade is a slide down some steep spow

slope in the following fashion: -You slant your alpenstock on your right side, holding your right hand low down, and using your left to support the upper end. Then planting firmly the left foot first and the right in line with it, you let yourself go, leaning backwards, and thus pressing the point of the alpenstock into the snow, you use it both as a sort of drag and support. It is glorious motion. Down you rush, and the mountains and the marks seem to fly unward and the and the rocks seem to fly upward, and the snow rises in fountains before your feet. But you must be self-possessed and careful and steady, or comical catastrophes may soon overtake you.

"Halloa, Harry!" cries Bob. "What's

Harry had lost his feet, which had slipped from under him, and was careering help-lessly downwards on his back, struggling all in vain to arrest his progress, until a mound of snow pulled him up.

But presently the tables were turned.

"Halloa, Bob!" cries Harry; "what's

Bob had tripped in a hole, and was immediately headlong on his bosom, sprawling hands and feet in every direction, with alpenstock scudding before him like a living thing, and he all the time going down a great deal faster than he liked in ignominious progress. But what glorious fun it was. Talk about 'toboganning' at twopence a turn! It is not a patch on the glissade. So said Bob ever afterwards in spite of a scraped nose.

In three hours and a half they had thus descended all the plateaus and mountain stairs, and reached once more in safety the

eyrie perch of the Grands Mulets.

There they regaled themselves for a deli-

cious hour on café au lait, which somehow in Switzerland never fails, and enjoyed the warmth of the sun and luxurious rest.

But now the anxions question is asked, How will the snow be in the crevasses below? Will the bridges be good and safe? The afternoon sun plays havoc with the snow-bridges. Safe in the morning, they have now prescrious after several publisher.

become very precarious after several melting hours.

Between the Grands Mulets and the crevasses are steep slopes of snow. They were soft enough now, and the party sank up to

the knees as they descended.

When they came to the crevasses the utmost caution was found to be necessary. Not a single liberty might be taken. Each one must feel again to the full that the safety of the whole party depended on his carefulness. It is this which makes mountaineering such fine training and discipline,

tainering such me training and discipline, something like soldiering.

There was one spot where were a bunch of crevasses opening in different directions. Jumping across the width of one, you came to the head of another, and here Bob was for a moment in danger. Taking his jnnip with too much vigour, he sprang so far that his legs went clean through the overhanging cornice of another deep crevasse. Without the rope he would have been surely lost. But it was beautiful to see how watchful, how effectual, was the action of the gnide. In an instant he had pulled tight the rope with backward jerk, and Bob was sprawling on his back, rescued from the gulf of which as yet he was quite unconscious.

Only one more incident occurred. party was coming to the edge of the glacier and nearing the ravine which runs from the Pierre de l'Echelle, but at a point considerably lever dear the ably lower down than the morning route, because of the danger of avalanches. more their good fortune was still in the ascendant. Frequently during their ascent they had heard the noise of avalanches without seeing them; now they were to behold one in full operation. Just as they reached a prominent place on a billow of the glacier which overlooked the ravine the scene came into view.

"Voilà!" cried the guide, pointing with

one hand to the precipice beyond the ravine, and with the other beckoning them to step no farther.

There was a huge tower of ice on the edge of the lofty precipice just beginning to sway forward preparatory to its fall. Hark! that was the report of the parting crack as it finally wrenched itself loose from the overlanging cornice. And now, for a long breathless moment, they witness the mighty fall and hear the thunder of the crash as the vast mass strikes the rocks below. watch it as it bursts into a tumultuous river of broken ice, and sweeps hissing down the

of broken ree, and sweeps hissing down the ravine like a glacier serpentine monster full of white rage and foaming fury.

"Splendid!" all cried, after an excited silence. "A quarter of an hour earlier, and we might have been swept away," said the guide. "We have to cross that ravine. Let us make haste; more may follow.

After this Pierre Pointue was reached in less than half an hour, and then of course another welcome rest ensued, during which Mr. Greystone asked a question.
"Guide," he said, "what time does the

Geneva diligence get in to Chamouni?

"Five o'clock, monsieur."

"What time shall we get down?"

"Easily by six, monsieur.

"Are you expecting any one?" Harry asked.

"Yes, a few friends," he replied; and there was an odd twinkle in his eye, as if somehow Harry's innocent question was a beautiful joke, if Harry only knew it.

Little did Harry dream who those friends

would prove.

From Pierre Pointue they were easily in Chamouni in an hour. Their approach had been announced by some who had preceded them, and as their procession moved along quite a crowd gathered to welcome them. Very proudly did Bob and Harry turn up the street which leads to the hotel, carrying their alpenstocks over their shoulders. They were also very shy just because they felt very proud and glad. Somehow they did not like people to look into their eyes and see what was in them, and so they kept them fixed on the ground as they neared a large crowd of people standing in the entrance of the yard of their hotel evidently prepared to give them a warm and distinguished reception.
"Well, Harry!" said a cheery voice, so unexpected that it made him start.

"Oh, my dear dear boy," said another, tenderly, at the same moment. And at the same moment also two quite different voices broke in together laughingly—two girls voices merrily saying,
"They never saw us! They never saw

And there was Mr. Stewart, and there was Mrs. Stewart, and there were Marion and Kate. Mr. Stewart was heartily shaking hands with Mr. Greystone, whilst Mrs. Stewart was embracing Harry, and the girls were looking at Bob with mischievous looks. But, oh, what a happy meeting it was, as you can easily imagine, under such circumstance

"Well, you are all safe, Greystone," Mr. Stewart said next. "Thank you so much. We got your letter at Geneva yesterday, and thought we would get here to welcome you as you came down from the heights of vic-

Then turning to the boys, he said, with a knowing look,

"Are you any taller now? Feel more like men of the world, eh!"

Perhaps by this time the sagacious reader will see as clear as the day what had been will see as clear as the day what had been Mr. Stewart's little plan, by which he had satisfied Mrs. Stewart's mind and reconciled her to the adventure, and by which he showed himself as indicious as he was kind.

As for Bob and Harry, they were never told anything more than what they heard at this moment. Mr. Stewart did not wish to spoil the spirit of self-reliance in them, nor,

indeed, the happiness of the adventure, and he knew that if they suspected they had been carefully guarded all the time in which they thought themselves alone, they would feel just a little disappointed. Ignorance was indeed bliss, and so he left them in it, as it

was also quite harmless.

They were now, of course, supremely happy, having no doubt whatever that they were quite competent to act as guides to Marion and Kate on mountain and on glacier. when, after a month's stay in Switzerland, they returned to school, they experienced even more delight, if that could be, than they

had anticipated.

"Mont Blane! Mont Blane!" said the astonished school. "Mont Blane! my stars! said the exclaimed one and all; and day after day for a long time they had to tell bits of their story to admiring hearers, and they became authorities on every subject of sport, but especially of travel, being considered only a little inferior to Stanley, or Livingstone, or Mungo Park.

(THE END.)

"UHhat Cheer? THhat Cheer?"

BACK again from our long trip, With the sun we've travelled round, Comes our well known paper ship, Seaworthy and safe and sound.

At each port upon our way Left we goods for one and all, Bright and merry, grave and gay, "Articles" for great and small.

Now we've come back to our store, This year's cargo all is done, Next week we shall start once more With (we hope) a better one—

And we look new friends to find Whose approval we may meet, And whose welcome true and kind May each week our coming greet.

While the old we'll not forget, Their allegiance has been true, And we mean to keep them yet, Adding to their ranks the new.

SOMERVILLE GIBNEY.

OUR OPEN COLUMN.

SCARLATINA JOYS.

FROM A BOY'S STANDPOINT.

Have you ever had the fever, In its very mildest form? Well, it's quite like taking shelter When there's not a sign of storm!

First the floor is stripped of carpet, And the shelves deprived of books, Just as if to make a sick room You must give it sickly looks

Then the chest is duly emptied Of its drawers, so neatly set, And it has the blank appearance Of a house that's never let.

Little luxuries and comforts That might make the place look nice, Such as tablecloths and hangings, Are all exiled in a trice.

To remind one of his coffin Sheets are hung outside the door. Such a beatific vision Ne'er had I beheld before,

To remind one of the garden, Fragrant incense fills the air From the fluid called Carbolic, Which is squirted everywhere.

Then come the friendly functions Of the isolated nurse, Who performs the disinfecting, And the oiling—which is worse.

And the food! What sweet remembrance I retain of milky slop, of the toast, and Liebig's Extract, But the doctor comes—I'll stop.

Soft his tread winds up the staircase, Then the curtain's drawn aside, Low he bows his head to enter, For the sheet is yet undried.

Then he smiles a smile so placid, As he slowly drops the veil; For he bottles all that's acid, Lest his medicines should fail.

At a distance from the bedside Sits he down and gently says, "How's the patient now, this morning?" Sending down one's throat a gaze.

After hearing of the symptoms, "Vcry good," he smiles, "indeed; You're progressing," but refuses My appeal for firmer feed.

With a sweetly-conched inquiry How the nurse is getting on, Smiling kindly still, and softly Dropped the sheet—the doctor's gone!

SPECIAL NOTICES.

We complete our ninth volume with this number, and next week commence a new volume with a very strong list of attractions indeed. We would ask our readers kindly to make the best use of the prospectus of the new volume which they will receive this week, as now of course is the most suitable time in the whole year for new subscribers to begin.

The plates issued with the monthly parts during the year may now be obtained by weekly readers in a neat packet, price 1s. 6d. The Title-page for the Volume is included in this packet.

As we have more than once explicitly stated, we cannot undertake binding for our readers, but this they should find little difficulty in getting done at a fair charge by local bookbinders. We have, however, prepared handsome cases or covers, in which any bookbinder will insert the numbers or parts at a small cost. These cases cost 2s. each, and may be obtained through the booksellers in the usual way. In the post they are apt to get damaged.

. We hope that all readers of this our ninth "Annual" will endeavour to do something, however small, to help on the "Boy's Own" Gordon Memorial Fund, of which full details have already been given in our pages.

Office: 56, Paternoster Row, London.

The End.

ALL things must end: the longest game at

Must have its close, however high the score:

There falls supine the tenth, the final wicket;
The umpire sticketh on the bails no more.

Lessons will end; one more examination,
And then the half is reckoned with the past;
Prizes are taken home in jubilation,
The welcome holidays are come at last.

Holidays end; the weeks fly by too quickly; And boyhood fades, one finds one's self a man:

The hair is scant which formerly grew thickly,
The waist, once slender, has an ampler span.

Yes, all things end: this is the final number Of this year's volume of the B. O. P.,

And one big volume more will soon encumber
The crowded shelf where his companions
be.





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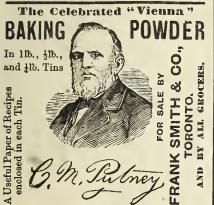
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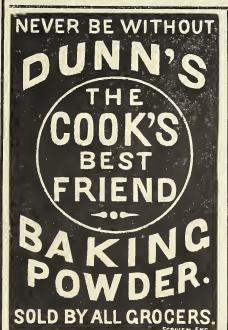
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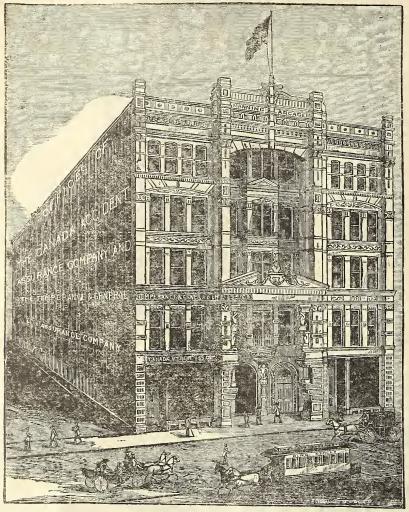
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Birth, Marriage,

AND

Death

ANNOUNCEMENTS

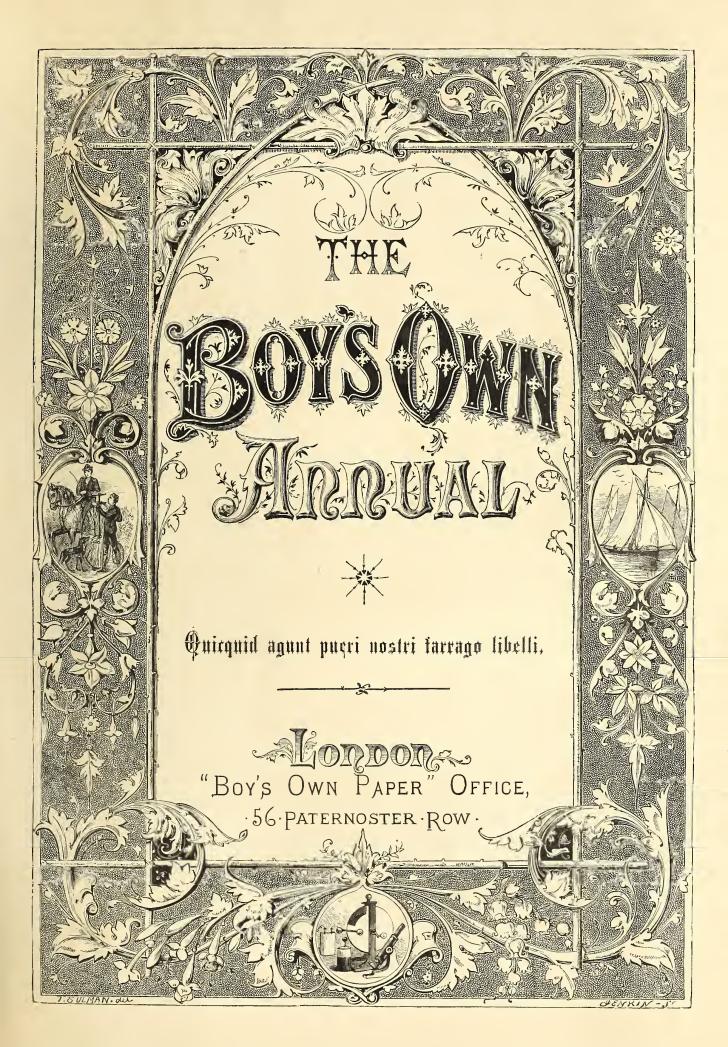
Everybody Reads Them

THESE NOTICES ARE INSERTED IN THE DAILY OR WEEKLY MAIL

FOR 50 CTS.

ADDRESS:

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The Annual Meeting of this Association took place on Tuesday, the 12th April, at which the Annual Statements were presented, showing the following satisfactory advance over the previous year:

New Business for the year, 1,919 applications for .. \$2,977,100 Being an

Increase over previous year of 427 applications for \$497,062 Increase in Premium Income 96,894 13,019 Increase in Interest and Rents Increase in Assets..... 356,375 80,234 Increase in Surplus

Insurance in force, 9,493 Policies, for....\$14,679,474 **Surplus**.....\$ 357,633 Capital and Funds now amount to over \$ 3,000,000

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Babies cry because they suffer. Their little gums are inflamed, and their bodies are more or less feverish. If you will tie around their necks one of Norman's Electric Teething Necklaces you will see a wonderful change for the better, their suffering will cease and their general health improve. Ask for Norman's, take no other, you will be pleased. Price, 50c.

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